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STERILITY

ANALYSIS OF CURES AND FAILURES *

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As one skims publications of the last half century in order to put together lists of the observations from more than 12,000 sterile unions, certain items stand out. Noteworthy is the multiplicity of entry in the column of "causes," and the paucity and smallness of figures in the column under "cures." One remarks how the male, his works, are shirked in the matter of full examination or detailed report, and that his defects are nowhere, as far as we can determine, directly correlated with those of the wife in any complete or detailed study. The most striking omission, however, is the following. Painstaking authors have rendered high service in books or monographs that collect other men's published summaries, with elaborate bibliographies. Each may give figures drawn from 200 to 600 personal case histories. None show any report or tabulation of all cases, case by case, listing all pertinent data, either for sterile women alone, or for both partners combined. Such volumes of abbreviated histories have been printed for cancer or for fibroids of the uterus, and for disturbances due to the pituitary body, but apparently not for sterility. Yet few matters more germane to the growth and vigor of the community (affecting a tenth or a sixth of its marriages) could claim a better right to coordinated effort in tabulating well studied material.[1]

The gynecologist and the urologist are therefore called on to start a new statistic. It will distinguish between voluntary and involuntary sterility. It will, before even examining the woman, evaluate the male; and this not only by physical overhauling and by detailed study of the semen, but by undertaking neglected and essential new studies of what the French call the "élément noble." Future schedules will incorporate the present tests of patency of the uterine tubes. Within a very few years we may hope to enter in our tables tests for presence or absence of ovulation and some knowledge of endocrine activities. Anyway, we can give careful heed to a critical analysis of every cure, and of failures as well. Finally, as a practical result of such analysis, we shall turn to preventive and educative measures, and perhaps even to fertility examinations before marriage.

We have taken out of our 788 sterile unions, collected from records in private practice, in sequence, the last 300 which show semen examinations, tabulating all pertinent data in an attempt to begin to correlate the various supposed causes, and with particular note of the several grades or factors in semen as found both within and without the vagina.

OBESITY

Among cattle and chickens, excessive weight is classed as a cause of sterility. Kisch[2] is the only author (except Brothers, with his 4 per cent of obese sterile women) who gives figures on human beings. Kisch found, among 215 women with excessive adiposity, three fourths with menses scanty or absent, and 21 per cent sterile, but apparently no correlation of adiposity with male sterility or with other causes was studied. He gives case histories of two fertile women who ceased bearing after laying on weight, and of three who became pregnant on taking off weight. One of us, in experiments with a couple sterile for nine years after the first baby, found the mother normal, and a father 5 feet 11 inches (180 cm.) in height with azoospermia at 41 years of age. A gymnasium course that reduced him approximately to his weight at the time of the first pregnancy (from 298 down to 241 pounds, or from 135 to 109 Kg.) produced active spermatozoa, and a lad so much a miniature as to prove the paternity—a point not always verified or verifiable in the records of unusual cures.

A glance over the Dickinson tables shows sixty-one, or 27 per cent, substantially overweight among 230 sterile unions taken in sequence. Of this sixty-one, twenty-five are noted as having put on 25 pounds (11.3 Kg.) or more since marriage, thirteen of these twenty-five gaining from 40 to 72 pounds (18 to 32.7 Kg.).

A study of tabulated histories of the sixty-one cases, however, shows in nearly all instances ample explanation for sterility in the way of poor semen, closed tubes, marked endocervicitis or other defects. Obesity as the sole discovered cause is found in only four. Periods began at 12 years of age, or earlier in ten, and later in three, while defective uterine development is present six times. Scanty or absent periods occur in ten, one of these among the ill developed uteri. The amenorrheas and defective development together would number fifteen, or about 25 per cent, which indicates a probable relation between ovarian or uterine defect and obesity.

* From the Committee on Maternal Health, New York.
* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Such extended tables as ours have no place in THE JOURNAL, but publication of charts is the only method by which the care and fulness of the study and entry can be judged, and cases from various sources compared.

2. Kisch, E. H.: Die Sterilität des Weibes, Vienna, Urban, 1895 (full literature—the source book).

UNDERDEVELOPMENT, ANTEFLEXION AND HABITUAL AMENORRHEA

Owing to the difficulty of proving failure of sperm cell migration above the point of anteflexion, Cary has at present omitted the diagnosis of stenosis and placed all his underdevelopment cases in one group under underdevelopment, anteflexion and habitual amenorrhea, with 33 per cent of cures. Dickinson made three groups, anteflexion, stenosis and infantilism, with a combined cure of 37 per cent. Until some definite classification is made for this group of cases and reports with semen condition in each noted, statistics will be of little value. For instance, anteflexion alone may be innocent, or at least many patients with marked anteflexion become pregnant without treatment. Anteflexion may also be a part of infantilism with or without obesity, and habitual amenorrhea may or may not be associated with anatomic stenosis. Cary noted in his very small series that success occurred only in patients with regular menstruation or those who resumed menstruation under treatment. We do not claim to understand endocrine management of these cases, and we simply state that we have no cure attributed solely to endocrine treatment.

Fig. 1.—*a*, typical vaginal pool in examination of normal insemination; *b*, specimen from upper cervix; same patient showing only spermatozoa of normal morphology, mucus cells and epithelium.

APPENDICITIS AND CLOSED TUBES

Dickinson, in a sequence of 362 sterile women, found a history of appendicitis in 16.3 per cent; Cary, in 140, 15.7 per cent. A study of twenty-four of Dickinson's cases showed no open tubes in the absence of appendectomy in six, whereas, after operation, the closed and patent tubes were nearly equal in number, eight and ten. In twenty-two cases, Cary had four tube blockades following appendectomy, and three after appendectomy and one-sided salpingectomy. The tube closures following appendicitis, in women known to be virgin, are being analyzed, in order to exclude pelvic adhesions caused by infections ascending through the pelvis.

SALPINGITIS

Grouped as to the major defect, salpingitis takes its place in our list as the most common cause of sterility (39 per cent). Poor semen is not found more frequently in salpingitis than in other cause groups. It doubtless would be if gonorrheal infection from the male were the primary cause of sterility. If causes of unknown origin were considered gonorrheal and were added to the known gonorrheal infections, gonorrhea would count as a direct cause of salpingitis in less than one half of Cary's cases. The remaining cases, 54 per cent, resulted from induced abortions, appendicitis, ectopic pregnancies, instrumentation and intra-uterine stems. From this group he had but one cure. General care and office treatment, including treatment of the male to prevent reinfection of his mate, gave a much better prognosis in gonorrheal infections, accounting for seven of Cary's ten successes.

Among the salpingitis cases occurred the patients with fixed displacements and dense adhesions blocking the fallopian tubes and amenable only to surgery. A review of the literature, and one's observation in the follow-up clinic of the future of patients subject to conservative surgery preserving the child-bearing function, make one unwilling to urge such operation for these patients. So few patients accepted the small chance of success that we have no data as to operative results in the cure of sterility due to salpingitis.

Cary [3] first proposed and described a technic for testing the patency of the tubes in 1913, involving roentgen-ray determination of free collargol in the peritoneal cavity after transuterine instillation. Later he used and described the easier technic in which patency was determined by the success or failure of attempting to instil sterile physiologic sodium chloride solution transuterine through the tubes. This test is made in the knee-chest position with a special pipet, using saline solution warmed to body temperature. It has the risk common to other methods by its direct entrance to the peritoneal cavity. Its great simplicity and entire absence of pain have caused us to favor this method. For the same reasons, we have been most conservative in its recommendation.

To prevent the interruption of pregnancy, tests have been made only after menstruation and prohibited intercourse. Infections in the reproductive tract have been noted as contraindications, and only when, by a process of diagnostic elimination, explanation of sterility pointed to the tubes, and neither clinical history nor examination indicated their involvement, was an indication for the patency test assumed. We have made exceptions in certain instances in patients with a history of pelvic infection long quiescent, studying these patients by roentgen-ray shadow, using 1 drachm (4 cc.) of freshly made 15 per cent sodium iodide solution for instillation. In forty-five patients in whom patency was studied only two cures are noted as directly attributed to opening the tubes in this manner. In only three instances were the tubes found blocked in the complete absence of any explanatory history or observations on bimanual examination. Of especial interest are seven patients with previous pelvic infections persistently sterile with vigorous insemination and one tube patent. Of these, three were induced abortions, two followed ectopic pregnancy, and two were caused by appendicitis. Typical roentgen-ray observations are shown. Three pictures are taken: one before the injection of the iodine solution and two after injection for stereopticon study, which greatly aids interpretation.

ARTIFICIAL IMPREGNATION

Until the bacteriology of the semen is studied and some method discovered for determining the time of ovulation, artificial impregnation is not practical, even if accepted by patients. Cary had two cures apparently due to artificial impregnation. One was a physician's wife who had a successful result in a former trial by Dickinson, and after a long period of sterility asked to have another attempt made, success following. The second patient had sustained an amputation of the cervix

3. Cary, W. H.: Note on Determination of Patency of Fallopian Tubes, Am. J. Obst. **69**: 452, 1914.

for chronic endocervicitis, and after many semen injections made at her husband's request, became pregnant and miscarried twins at the fifth month of gestation. In a third patient, a very poor semen specimen was injected several times without result. When the husband's condition was improved, this patient became pregnant without resorting to artificial means. Our experience would indicate that the so-called seromismating must be a rare condition.

MALE STERILITY

In 1,763 reported cases of sterile unions in which semen has been directly examined by twenty-eight

Fig. 2.—Both fallopian tubes patent, free iodide solution in each lateral pelvis. In figures 2, 3, 4 and 5 the normal pelvis is shown at the left and the pelvis after injection of sodium iodide at the right.

observers (omitting those samples taken from the birth canal), the average proportion due to poor semen stands at 31.25 per cent.

It should be noted that among these authors the range of occurrence of defective semens is very wide, running from 10 to 15 per cent up to 60 and 70, the higher figures occurring among the urologists or in smaller series.

In the longest single series, that of Hunner and Wharton,[4] covering 279 men, the defective semens are 20 per cent, but the authors state that this figure is too low, because men who know or believe themselves to be at fault are prone to decline examination. The Johns Hopkins men think that most of the foregoing faults are gonorrheal in origin. Dickinson shows 12 per cent azoospermia, plus 31 per cent poor; Cary,[5] 11 per cent azoospermia and 27 per cent deficient and poor. As a urologist, Read, in 253 cases, found 23 per cent azoospermia.

Pelvic adhesions occur, according to an average taken from five authors, in 26 per cent of sterilities, but the range is glaringly diverse, as far as from 5 to 53 per cent. Gonorrhea is credited with 25 per cent, to judge by an average drawn from five authors, whose figures are far apart; namely, from 12 to 45 per cent.

It would evidently not be fair to add together the figures for defective semens and those for either closed tubes or infection and thus get a combined result. Should we then run over 50 per cent and draw the inference that, as gonorrhea is almost always brought in by the male, therefore sterility was to be credited to the husband in more than half of the instances, we might be reasoning falsely. We cannot make this combination until we are sure that the two series, semens and infections, do not overlap, and thus get a single union on the list twice. Here again we need an author's complete list to work on. We can justly infer from the foregoing, however, that the male is to be credited with at least one third of the sterilities.

As late as 1916, an exhaustive review of foreign and American literature showed that examination of the semen as a routine and essential part of the gynecologic study of a series of sterility patients had not been undertaken. A complete bibliography was appended to an article published by Cary [3] the same year, in which it was stated that routine study of the male element in sterility cases indicated that 35 per cent were due to semen defects. This experience was soon confirmed by the observation of other gynecologists. This conclusion that gynecologic treatment should not be undertaken until the fertility of the male is established was accepted in principle, though its adoption in practice was much slower. Reynolds reports that thirty-seven of sixty recent cases in which operation was previously performed showed male defectives, while Cary had 45 per cent. Cary concluded that if he were to be consistent, improved results were to be obtained and scientific data of value accumulated only when patients could be accepted as sterility problems, when the cooperation of both husband and wife was assured and suitable conditions could be provided for a complete study and diagnosis before instituting treatment. This involved urologic study of the male in many cases. With the exception of patients referred by physicians for some special opinion, he made this a rule of practice. The number of his case records are therefore not large, but they have the merit of containing as full and honest clinical data as ample personal study and management could provide. Compensation for the large number of patients who failed to meet conditions (seventy, or 35 per cent) was found in the intelligent appreciative

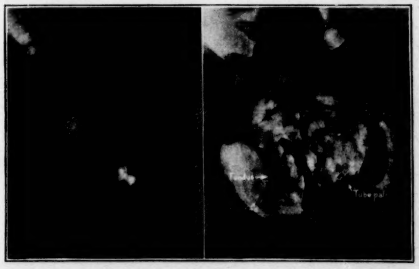

Fig. 3.—Left tube patent, right tube blocked at cornua; fundus displaced to right. The absence of speculum with freedom from usual distortion caused thereby may be noted.

class of patients who fully cooperated (126). Further justification would seem to be indicated by a record of 46 per cent of cures in patients who continued under Cary's care after a diagnosis permitted an outline of treatment (seventy-three). Azoospermia cases were declined, and with one exception the few patients with marked permanent pelvic adhesions amenable only to surgery, who consulted Cary solely for sterility, declined operation when frankly told the small chance of success offered.

Detailed study of these 126 completed records shows that recognition of the vital significance of deficient

4. Hunner, G. L., and Wharton, L. R.: Sterility, South. M. J. **17**: 269-277 (April) 1924 (a study based on a series of 526 patients).
5. Cary, W. H.: Examination of the Semen, with Special Reference to Its Gynecological Aspects, Am. J. Obst. **74**: 615 (Oct.) 1916.

semen as a cause of sterility has been one of the most important factors in treatment. It constituted an omission or error in diagnosis in 20 per cent of the patients who came from other physicians. In Cary's analysis of cures, 20 per cent are credited to the improvement of deficient male specimens.

First-class laboratories and capable physicians frequently report deficient semen as normal because microscopic examination demonstrates active spermatozoa. This regrettable error occurs because of the prevailing idea that nature produces a lavish excess of male element. One studying insemination notes that hundreds of sperm die in order that the vigorous may survive to carry inheritance safely to a new union.

While ten years before, in the paper mentioned above, attention was called to lesser degrees of semen defect and a nomenclature was proposed for abnormal types, the practical importance of this condition was not then appreciated. With increased experience, the interpretation of defective specimens was found to be a continual stumbling block. This was due in part to the extraneous factors involved in securing the specimens, but more particularly because semen deficiency is in part a relative term, depending on the conditions which the semen encounters in the female.

Fig. 4.—Right tube blocked at fimbria, left tube block in midportion.

In an effort to solve this problem, Cary, accepting a suggestion from Huehner,[6] determined to study insemination in all sterility patients with a routine method of preparation and technic. Briefly, this method, which has already been described in detail,[7] called for arrangements whereby the wife could reach the office for examination not later than one hour after coitus. She was instructed to recline a minimum of twenty minutes after intercourse, or longer if nearness to the office permitted, and to omit any visit to the toilet. The importance of this preparation was determined by test, for it was noted occasionally that if patients found it imperative to get on their feet immediately after coitus, insemination was defective; whereas, under proper conditions, a satisfactory observation resulted. An hour after intercourse was shown by experience to be the ideal time for examination. Under normal conditions the sperm cells had in that interval invaded all parts of the cervical mucus, and the vagina had not as yet reestablished its acidity and affected the value of the vaginal specimen. Investigation of semen activity in the vagina and in all levels of the cervical mucus to the internal os is then carried out with all equipment warmed to body temperature.

6. Huehner, Max: Sterility in the Male and Female, New York, Rebman, 1913.

7. Cary, W. H.: Sterility Studies: Simplified Methods in Diagnosis, Am. J. Obst. 2: 406 (Oct.) 1921.

ANALYSIS OF ONE HUNDRED INSEMINATION TESTS

The process of insemination was thus studied in 100 patients. All deficiency data were confirmed or corrected by subsequent examinations, and when failure of insemination was definitely ascribed to the semen, a direct specimen from the male was examined for comparison. By this study we have been impressed that:

1. Study of insemination with the technic described constitutes a most valuable procedure in examination of a sterility problem. Haphazard examinations give conclusive results only when observations are normal.

2. Any semen specimen showing definite quantitative or qualitative inferiority is a potential cause of sterility. The insemination study provides a functional test. Normal sperm cell migration to the fundus cannot be inferred by separate examination of the semen and the cervical secretion, except in those instances when the condition of each is normal.

3. Migration of normal semen seems influenced solely by the condition of the cervical secretion. Neither laceration, cyst, fibrosis of the cervix, nor abnormalities of position were otherwise found of consequence. Retroversion per se is therefore not entered as a diagnosis, though occurring as a complication in 18 per cent of these cases.

4. The occasional instance in which a deficient semen impregnates when especially favorable conditions are present in the female, and the rare instances when a supervigorous semen successfully penetrates the abnormal secretions of the cervix are exceptions which add rather than detract as indications of the value of the study. It further emphasizes the highly individual character of fertility study and the need of publishing a series of complete case records.

5. Estimation of semen efficiency requires experienced study and is more effectively done by the gynecologist as a correlated part of the sterility examination. Such examinations must be made by special appointment.

CURES

In the extensive literature on sterility, data on curability make up a disappointingly small proportion of available figures. Giles,[8] for example, in his volume replete with statistical studies of his 530 patients, deliberately avoids numbers in the chapter on prognosis. The book by Reynolds and Macomber [9] makes a record for sweeping statements unsupported by figures or records, only three sketches of case histories appearing in the 285 pages. The authors affirm that surgery of the ovaries "is the most important feature in the treatment of sterility of the female" (p. 255), and that "a quarter of all female sterilities" (those of underdevelopment) "has yielded 80 per cent of successes" (p. 711), yet they give no intimation of the total number of their cases, operations or cures.

The figures quoted below are unsatisfactory because, save for such reports as those of Hunner and Wharton, and Polak,[10] it does not appear in what cases or series or proportion the condition of the male is known, or whether causes may coexist. In the earlier series, of course, the wife was subjected to long treatment or major operation without examination of the semen.

8. Giles, A. E.: Sterility in Women, Oxford Press, 1919 (chronological literature; summary of previous authors).

9. Reynolds and Macomber: Fertility and Sterility in Human Marriages, 1924.

10. Polak, J. O.: A Detailed Study of the Pathological Causes of Sterility with the End-Results, Surg. Gynec. Obst. 23: 261-268 (Sept.) 1916.

The frequency of cure, from the testimony of those seven authors who furnish figures on results in general, shows an average of 21.1 per cent. The range is from 8.5 to 40.

Concerning the curability of particular conditions producing sterility, there are some figures to be found. Based on observations of what one infers to be about 2,000 women, sterile from various causes, one finds percentages of success given for salpingostomies performed by nineteen operators. Two of the chief advocates, Reynolds and C. G. Childs, though repeatedly challenged to state their percentage of successful operations, have never been willing to submit figures or data to substantiate their assertions. Pregnancies reported after opening tubes range from Halban's zero, Pozzi's 3.3 and Polak's 6.3 per cent of successful operations to Delbet's 34 and Solomon's 47. Omitting Solomon's figure until other extreme statements in the paper are confirmed, and taking the figures of eighteen operators—the most reporting 10 per cent [11]—we reach an average of 14 per cent, or one chance of success in seven. For retroversion, one notes Giles' 5 per cent, the Hunner-Wharton nineteen replacements and thirteen suspensions with 25 per cent success, and Polak's

Fig. 5.—Dilated fundus, both tubes blocked.

(eleven pessary, nine round-ligament-plus-Dudley operations) 55.6 per cent. For anteflexion, Brickner, in forty-two Dudley posterior lip-splittings, had 31 per cent of success, and F. C. Holden reports the same 27 per cent of cure from the Dudley procedure as by dilation. For stenosis, Hunner had 35 per cent in fifty-five cases, while, for presumptive stenosis and anteflexion, Pozzi and Barnsby report 170 lateral splits of the cervix with 31 per cent pregnancy; Jacquet, for a like procedure, in seventy-nine cases, 60 per cent success; and Polak, with five amputations of hypertrophied cervices, five cures. In myomectomies for sterility, Engstrom had cures in 26.4; Essen-Moller, in 10 per cent, Hunner, in 27 per cent and Polak in 33 per cent. Finally, in ten cases of amenorrhea with long gaps, Rubin's recent report on roentgen-ray stimulation, using one-third the castration dose, shows 75 per cent of cure. The distention of closed tubes by gas, air or fluid presents, as yet, no comparative series of sufficient numbers to gage results. Peterson reports thirteen pregnancies in the thirty-six patients answering letters, or 33 per cent; but this does not represent all the cases.

Excluding azoospermia, Read, in treating 108 males, knows of pregnancies in 20 per cent. Taking male cases generally, Wolbarst, without giving data, reports 33 per cent cures, but Zigler's thirty-six detailed case histories show few recoveries.

Based on observation of private patients for the most part, and as the results obtained in the most expert hands, the foregoing figures may be regarded as a series of maximal results. The most frequently recurring figure is seen to be about one third or just below a third, except for the tubes.

TABLE 1.—*Cures and Failures in Treatment for Sterility*

	Diagnoses	Percentage of Cures	Percentage of Failures
Salpingitis (the success probably owing to refusal of hopeless adhesion)	105	25	75
Retroversion	72	39	61
Anteflexion	88	37	63
Stenosis	57	47	53
Endocervicitis	119	39	61
Fibroids	43	21	79
Infantilism	16	25	75
Total (about 2 per patient)	495	Average 33	67

If one draws tentative conclusions from these excerpts from the literature, it is to be inferred that the physician may be warranted in offering to sterile women one chance in five of cure. To judge by the literature, even in favorable circumstances, with good semen, he should not lead the couple to hope for more than one chance of cure in three, while for closed tubes, even in skilful hands, the outlook is not above one success in seven operations.

CURES VERSUS FAILURES

In a list of 236 of Dickinson's patients who were treated—that is, patients who were seen more than once or twice and with whom some treatment was attempted—only sixteen, or 6.8 per cent, had a single cause for the sterility, while thirty-one, or 13 per cent, had three or more possible simultaneous reasons listed, including male defects. The average is two to each patient. The frequency of the appearance of a cause runs as in table 1.

TABLE 2.—*Analysis of Causes of Sterility in Three Hundred and Two Cases Grouped as to the Main Defect with Correlated Semen Observations*

			Cases	Per Cent
Male responsibility			82	27.2
Azoospermia	31	Endocervicitis	11	
		Underdevelopment	6	
		Retroversion	2	
		Obesity	2	
		Salpingitis	3	
		Fibroid uterus	3	
		Normal	4	
Deficient semen	50	Salpingitis	8	
		Endocervicitis	14	
		Underdevelopment and amenorrhea	10	
		Retroversion	6	
		Obesity and scant period	3	
		Oophoritis	1	
		Fibroid uterus	1	
		Normal	7	
Impotence	1			

	Semen				
	Good	Fair	Deficient		
Chronic salpingitis	49	15	12	76	25
Chronic endocervicitis	46	18	8	72	23.8
Underdevelopment, anteflexion and amenorrhea	35	10	6	51	17
Obesity with endocrine imbalance	2	..	..	2	0.7
Failure of male entrance	6	..	..	6	2
Fibroid uterus	2	2	..	4	1.6
Pinhole os cervix	..	2	..	2	0.7
No cause found	..	..	..	5	1.6
Artificial impregnation (cause not definite)	..	..	..	2	...

11. Funck-Brentano and Plauchu: Traitement de la stérilité chez la femme, Paris, Doin, 1912; valuable source book, particularly of French literature.

If these results can be taken as of any value, they would suggest that stenosis presents a rather remediable condition, whereas fibroids (a disorder of advanced married life, when fertility is low) and infantilism and salpingitis hold out less hope of remedy. This list looks as if there were, in general, twice the chance of failure there is of success. Dickinson notes that Cary did better, by his method of declining to treat patients who would not promise persistence.

CONCLUSIONS

1. Several thousand clinical histories of sterile unions, recorded by living expert students of the subject, are available for combined systematic analysis—particularly of the items absent in publications, such as tabulated correlation of causes, and reasons for success or failure. Certain essential researches on human semen, insemination and ovulation have been defined and their study begun. In both matters, organized work is called for.

TABLE 3.—*Analysis of Cures and Failures; Seventy-Three Cases Grouped by Major Defect*

(Includes all patients continuing under Cary's treatment as outlined after completed diagnosis)

Cures (34 cases, 46 per cent)	Cases	Failures (39 cases, 54 per cent)	Cases
Chronic salpingitis	10	Chronic salpingitis	10
General and office treatment	8	General and office treatment	6
Gonorrheal	5	Induced abortion	3
Probable gonorrhea	2	Appendectomy and salpingitis	1
Unknown	1	Postectopic	1
By instillation	2	Contraceptive (wishbone stem)	1
Postpartum	1	Laparotomy (appendectomy and salpingitis)	1
After appendectomy and curettage	1	By instillation	3
Semen: good, 9; fair, 1		Gonorrheal	1
		Appendectomy	2
		Semen: good, 6; fair, 1; poor, 3	
Chronic endocervicitis infection	6	Chronic endocervicitis infection	11
Semen: good, 5; deficient, 1		Semen: good, 8; fair, 1; poor, 2	
Mucus blockade (sexual irregularities)	3		
Semen: good, 3			
Defective semen	7	Poor semen	5
Underdevelopment, anteflexion and amenorrhea	4	Underdevelopment, anteflexion and amenorrhea	8
By dilation and stem	3	Dilation and stem failure	5
Semen: good, 3; fair, 1		Endocrine treatment	3
		Semen: good, 4; poor, 3; fair, 1	
Fibroid uterus	1	Pinhole os cervix	1
Semen: good		Semen: fair	
Failure of male penetration	1	Advanced age	2
Semen: good		Semen: good, 2	
Artificial impregnation	2	No cause found	2
Diagnosis not definite		Still under observation	
Semen: good, 1; fair, 1			

2. Any tubal testing, treatment or operative procedure for sterility that is done on a wife, before the present condition of the husband is determined, should in these days carry the stigma of malpractice.

3. Semen defects appear to account for one third of sterile marriages, one fourth of these defects offering hope of betterment. Adding his contribution of venereal infection may bring the husband's responsibility up to one half, and charges up to him the least curable of the wife's sterilities, tubes sealed by inflammation.

4. Curability ranges, with the woman in the care of representative gynecologists, from one chance in seven with closed tubes, to one in three in more favorable conditions. With careful selection and by persistence in treatment, even better results may be obtained. Thus we may be able, after eliminating the grossly incurable, eventually to relieve one half of the sterile unions.

36 Pierrepont Street.

EFFECT OF A DIET LOW IN CALCIUM ON FERTILITY, PREGNANCY AND LACTATION IN THE RAT*

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Calcium is the most important of the inorganic elements in the animal body. In the adult [1] it furnishes 2 per cent of the total weight, and 99 per cent of this amount is found in the bones and teeth. It is present in all tissues, including the blood, and without it life, as we know it, would be impossible. It is self evident, therefore, that a liberal supply of calcium in the diet must be a matter of vital importance at all times. There are, however, three periods during the life of the individual during which it is of particular importance. First, that of growth, when bulk is being added so rapidly to all the tissues; second, that of pregnancy, when the mother must supply the calcium for the bones of the developing fetus, and third, that of lactation,

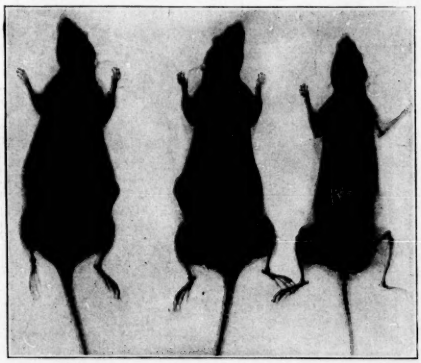

Fig. 1.—Condition of bones after two pregnancies (no lactation): rat 7-83, diet B; rat 59-25, diet A; rat 557-39, stock diet.

when the milk from the mother must act as a source of calcium for the growing young. Calcium is not, of course, found as such in the body but usually in combination with phosphorus. The bones are formed of a combination of calcium carbonate and calcium phosphate. The metabolisms of these two elements go hand in hand, but it has been recently discovered that a third substance, the so-called vitamin D, or antirachitic factor, is also necessary for their proper metabolism. Besides rickets, osteomalacia, tetany and possibly sprue are associated with disturbances in the calcium metabolism. There is some evidence that the parathyroids may have a controlling action on this.

Ordinarily in adult life there is, however, little occasion to be disturbed about the calcium metabolism, even though, as Sherman [1] has so well shown, the average American dietary runs perilously near the danger line in regard to its content in that element. But there has

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* From the Research Laboratory of the Department of Obstetrics, Medical School of Harvard University. This work was aided by grants from the DeLamar Fund, and from the Committee on Maternal Health.

1. Sherman, H. C.: Chemistry of Food and Nutrition, ed. 2, New York, the MacMillan Company, 1919.

been a great deal of recent experimental work [2] tending to show that low calcium in the diet may upset fertility and cause miscarriage.[3] It is also well known that the teeth often suffer with pregnancy, and there has been experimental work to show that this may be due to changes in the diet.[4] It is also conceivable that some of the disturbances of lactation may be just as easily explained on dietary grounds as because of the nerve tension of modern life, which is so often pointed out as the underlying cause. Recent work with the cow and other animals would seem to corroborate this.[5]

REVIEW OF LITERATURE

Although various papers on calcium have been appearing from time to time and with an increasing frequency of late, the work that has dealt more strictly with the effect of variations in the calcium content of the diet on reproduction has been less voluminous. In order to understand the background of the present research, a brief review of this literature is important.

One of the earliest writers to call attention to the importance of calcium in relation to reproduction was Michel.[6] He gave analyses of the human fetus from 16 to 40 weeks and showed how at first the requirements of the developing embryo are relatively slight but rapidly increase during the last few weeks, the total at 16 weeks being less than 0.5 Gm.; at 28 weeks only 6.8 Gm., but at 40 weeks more than 33 Gm. Hoffström,[7] in 1910, reported a careful study of the calcium metabolism of a pregnant woman from the seventeenth week to the end of gestation. His figures show a mounting curve of calcium retention which closely follows the fetal requirements as shown by Michel. These and earlier studies were from the analytic point of view, but it was not until an understanding of the supplementary dietary substances permitted an experimental approach to the problems of calcium metabolism that real progress was made. In 1911 Hart, Steenbock, McCollum and Humphrey [2] published the report of their work on the "Improvement in Reproduction in Cows by Supplementing a Wheat Ration with Inorganic Salts." They found that when the ration of pregnant cows was limited to wheat hay and wheat grain products, both of which are low in calcium, the calves were born prematurely and invariably were dead. If this ration was supplemented by calcium salts, the calves were born alive and at term. This work was extended by Hart, Steenbock [8] and others in 1919 to studies of reproduction in swine, and supplemented by further studies in the cow on other rations in 1920 [9] and 1924.[10] In all these animals, lack of calcium salts in the ration caused premature births of dead or weak young. They found, furthermore, that it made no difference whether the lactate, carbonate, phosphate, silicate or sulphate of calcium was used to make good the deficiency.[11] In the meantime, E. V. McCollum [12] and his associates had continued their investigations into the effect of inorganic salts (chiefly calcium) on growth and reproduction; and Osborne and Mendel [13] had published an exhaustive summary of the rôle played by the individual inorganic elements in growth. Lastly has come the demonstration of a substance apparently elaborated under the influence of ultraviolet rays, provisionally called vitamin D,[14] which is very important in the metabolism of calcium. Its presence will often enable the body to store calcium when otherwise there would be a loss. It is therefore particularly important in the diet of the nursing or pregnant mother as well as in that of the growing child.

It has, of course, long been recognized that calcium is important in reproduction through its effect on egg and milk production. Recently there have been numerous controlled studies on these subjects largely made in our agricultural experiment stations. It is unnecessary to cite more than one or two of these. Buckner, Martin and Peter [15] showed that the percentage of lime in the diet of hens had a marked effect on the hatchability

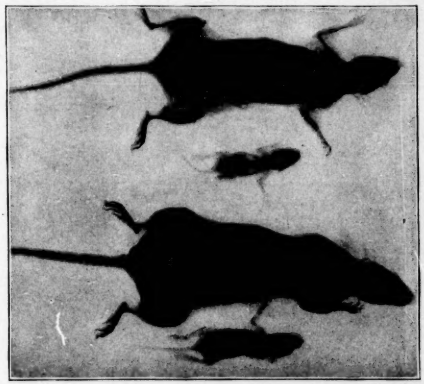

Fig. 2.—Condition of bones after two pregnancies, the latter followed by lactation; 26 day old young shown beside each mother: rat 47-20, diet A; rat 6-30, diet B.

(vitality) of the eggs. Forbes and his associates [5] and Eckles and Palmer [16] have done interesting work on milk production in relation to the calcium metabolism. Lastly Simmonds,[5] who has worked with E. V. McCollum, has written a monograph on "Reproduction and Rearing of Young by the Rat as Influenced by Diet." This work, as far as the observations in regard to calcium are concerned, is similar to that reported in this paper, but it has not from a quantitative standard been adequately controlled. The amount of food eaten by the individual rat is an important factor in the actual amount of calcium received, since a rat eating twice the food eaten by another will receive twice the calcium.

In 1921 [2] and again in 1923, Reynolds and Macomber [17] reported that a diet low in calcium had

2. Hart, E. B., Steenbock, H., et. al.. Research Bull. 17, Wis. Exp. Sta., 1911. Reynolds, Edward; and Macomber, Donald: Defective Diet as a Cause of Sterility, J. A. M. A. **77**: 169 (July 16) 1921.
3. Macomber, Donald: Boston M. & S. J. **193**: 116 (July 16) 1925.
4. Howe, P. R.: Common Health **7**: 228, 1920.
5. Forbes, E. B., and others: J. Biol. Chem. **52**: 281 (May) 1922. Simmonds, Nina: Am. J. Hyg. (Supp.) **4**: 1 (Sept.) 1924.
6. Michel: Compt. rend. Soc. de biol. **51**: 422, 1899.
7. Hoffström, K. A.: Skand. Arch. f. Physiol. **23**: 326, 1910.
8. Hart, E. B., and Steenbock, H.: J. Biol. Chem. **39**: 209 (Sept.) 1919.
9. Hart, E. B., and Steenbock, H.: Research Bull. 49, Wisconsin Exper. Sta., 1920.
10. Hart, E. B., and Steenbock, H.: J. Biol. Chem. **62**: 323, 1924.
11. Hart, E. B., and others: J. Biol. Chem. **56**: 375 (June) 1923.
12. McCollum, E. V.; Simmonds, Nina; and Pitz, W.: J. Biol. Chem. **30**: 13 (May) 1917. McCollum, E. V.: Harvey Lecture, 1916, p. 151; The Newer Knowledge of Nutrition, ed. 2, New York, the MacMillan Company, 1922.
13. Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. **34**: 131 (April) 1918; Bull. 156, Publications of the Carnegie Institution of Washington, part 2, 1911.
14. Hart, E. B., and others: J. Biol. Chem. **48**, 1921; **53**: 21 (July) 1922. McCollum, E. V., and others: J. Biol. Chem. **53**: 293 (Aug.) 1922.
15. Buckner, G. D.; Martin, J. H., and Peter, A. M.: Am. J. Physiol. **71**: 543 (Feb.) 1925.
16. Eckles, C. H., and Palmer, L. S.: J. Biol. Chem. **27**: 313 (Nov.) 1916.
17. Macomber, Donald: Defective Diet as a Cause of Sterility, J. A. M. A. **80**: 978 (April 7) 1923.

considerable effect in reducing fertility. These experiments were carried out before the epoch making report of Long and Evans [18] on the estrous cycle in the rat and before Evans' later work on his antisterility vitamin E.[19] In view of this later work, these earlier studies on the effect of low calcium were quite inconclusive and it seemed desirable for this and other reasons to carry out a carefully controlled research to determine as exactly as possible the effect of a diet low in calcium on fertility and reproduction. Simmonds' work referred to above [5] had not dealt with fertility, nor were there any detailed observations on pregnancy. She had shown that diets low in calcium when fed to nursing mothers seriously affect the growth of the young, and that after a while, particularly when the females had raised more than one litter, there were apt to be serious consequences from the calcium drain to which the mothers themselves had been exposed.

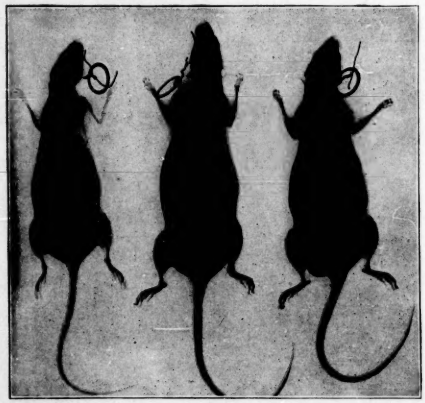

Fig. 3.—Condition of bones after three pregnancies, the latter two followed by lactation: rat 47-20, diet A, three pregnancies, two lactations; rat 6-30, diet B, three pregnancies, two lactations; rat 17-80, diet B, four pregnancies, no lactation.

PRESENT EXPERIMENTS

The animals used in this series were young vigorous adults of from 150 to 200 Gm., from 3 to 6 months of age. They all proved to be normally fertile. Twenty-eight animals were placed on diet A (table 1), the control diet, and one containing an adequate amount of calcium. Thirty-five were placed on diet B, which was precisely identical with A in every respect except that it contained only a minute trace of calcium as far as the diet itself was concerned. The animals did receive a small amount of calcium from the lettuce and the drinking water, and a slight additional amount which was present as a contamination in the casein. These additional sources of calcium were most carefully controlled by analyses, so that it can be definitely stated that for each 15 Gm. of the food eaten, plus the 20 Gm. of lettuce and the 10 cc. of water, diet A furnished 70 mg. calcium, and diet B, 10 mg.; a similar estimation of the amount of calcium in 10 Gm. of each diet, plus the lettuce, etc., is shown in table 2. Reference to table 1 will show that the percentage of protein (20) was adequate and that the protein used was a biologically complete one; that salts were present in the proportion of 4 per cent,[20] and that adequate sources of all the necessary vitamins were present as follows: A, in the cod liver oil; B, in the yeast; C, in the lettuce; D, in the cod liver oil, and E, in the lettuce. Sufficient calories were furnished by the starch and lard.

TABLE 1.—*Composition of Diets**

DIET A (CONTROL)	
Casein	20
Salt mixture IV (Mendel)	4
Starch	56
Lard	20
	100
DIET B (CALCIUM DEFICIENT)	
Casein	20
Salt mixture XX (Mendel)	4
Starch	56
Lard	20
	100

* In addition, each rat on both diets A and B received daily 0.2 Gm. of yeast, 20 Gm. of lettuce and 0.2 Gm. of cod liver oil (Patch).

The animals on these diets were weighed daily and a daily smear was taken from the vagina according to the technic of Long and Evans.[18] After one month they were mated when found to be in stage 1 or 2 of the estrous cycle, and the vaginal smears inspected for the presence of spermatozoa. In any study of fertility the certain and early diagnosis of pregnancy is particularly important, and for this reason we used every means in our power to make our diagnoses accurate. The diagnosis of pregnancy in the rat may be made with more or less certainty by any one of the following six methods; if all, or the majority, are positive it becomes almost a certainty. The first sign, and one of the most reliable, is the finding of spermatozoa in the vaginal smear. On several occasions, however, we have found this sign and the rat has subsequently failed to show any of the other signs. The second is the absence of estrous cycle changes which the previous record of the same rat would lead one to expect. In pregnancy, the smear uniformly shows stage 5. The third sign is a gain in weight out of proportion to the curve of normal growth. This sign is quite reliable when there is a large litter, but occasionally it fails altogether. The fourth is a

TABLE 2.—*Calcium Content of a Typical Twenty-Four Hour Ration for Rats on Diets A and B**

	Gm.
DIET A	
10 Gm. of diet A (in salt mixture)	0.0397
Casein (assayed at 0.098 per cent Ca)	0.0014
10 cc. of tapwater	0.0002
20 Gm. of lettuce	0.0086
Total in 24 hours	0.0499
DIET B	
10 Gm. of diet B (in salt mixture)	0.0000
Casein (in 10 Gm. of diet)	0.0014
10 cc. of tapwater	0.0002
20 Gm. of lettuce	0.0086
Total in 24 hours	0.0102

* The calcium content of diet B will never exceed 0.0116 Gm. in twenty-four hours, even if 20 Gm. of diet is consumed.

18. Long, J. A., and Evans, H. M.: Memoirs of Univ. of Cal. **6**, 1922.
19. Evans, H. M., and Burr, G. O.: Proc. Nat. Acad. Sc. **11**: 334, 1925. Evans, H. M., and Bishop, K. S.: J. Metabol. Research **1**: 319 (Feb.), 335 (March) 1922; **3**: 201 (Feb.) 1923.

20. The salt mixtures were those used by Mendel based on the relative proportion in which these salts occur in milk.

sign which was first noted by Long and Evans,[21] which they call their "placental sign," and which consists in the finding of blood in the vaginal smear between the thirteenth and sixteenth days of pregnancy. We have several times noted another change in the vaginal smear due to the presence of a thick mucous plug which also seems to be not infrequently associated with pregnancy. The fifth sign is the palpation of fetuses with the rat under ether. This sign is very reliable during the latter half of pregnancy if many fetuses are present, but may be doubtful if there are only one or two. The sixth sign is the inspection of the corpora lutea of pregnancy at operation. This may be combined with inspection of the developing embryos if the incision is a ventral one. While the latter method is most satisfactory from the point of view of diagnosis, it is much more apt to disturb the pregnancy and therefore affect the results, so that we always followed the technic of MacDowell,[22] by which the ovaries are inspected from the back by incisions through the flank muscles. This method does not disturb the pregnancies in the least and does furnish all the needed data in regard to the corpora lutea.

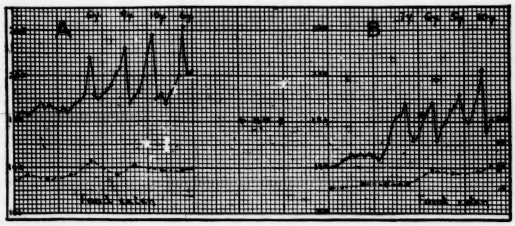

Fig. 4.—Typical weight charts of mothers undergoing pregnancies on diets A and B; no lactation: rat 49-22, diet A; rat 21-41, diet B.

All the methods noted above were carried out for each pregnancy. The operations were done as a rule after the placental sign had been obtained, and each rat was carefully palpated before the incision was made. Careful records were kept of the number of corpora lutea and of the number of young. The young were all accurately weighed. In most instances the young were killed and the female was remated at once. This enabled observations to be made in practically 200 pregnancies involving the birth of more than 1,200 young. In addition, careful observations were made on twenty-five animals which were allowed to nurse their young. Throughout the experiment daily records were kept of the exact weight of the food eaten by each rat. In this way the amount of calcium ingested by each rat daily was accurately known to tenths of a milligram. When these records were checked with analyses[23] of the calcium content of adult rats before and after the experiment on both diets, of the adult rats after lactation, and of new-born young and young raised by mothers on the two diets, they furnished as completely controlled records of the calcium metabolism in relation to reproduction as it was possible to obtain for such a small animal as the rat.

INTRA-UTERINE MORTALITY

Before proceeding to a description of the results obtained, it is necessary to say a few words in explanation of what is termed intra-uterine mortality.

In the larger mammals in which only one or two young are produced, intra-uterine death, if early in pregnancy, leads to abortion, if late to stillbirth. In smaller mammals, like the rat, however, in which the average litter size is eight or more, there is what may be termed a normal intra-uterine mortality. In other words, the eggs that are produced and fertilized at a given estrus do not all develop and form living young at birth, but some die before implantation and others are absorbed at various stages during the pregnancy. There seems to be a small and rather constant percentage of stillbirths as well.[24] The same state of affairs occurs regularly in other pluriparous animals. Robinson[25] has reported studies with the ferret, Corner[26] with swine, and Hammond[27] with sheep and rabbits which demonstrate this condition; in fact, Robinson has adduced breeding records of race horses which tend to show that statistically the same thing also holds good for larger mammals. Be that as it may, the size of the intra-uterine mortality is a very good gage of the fertility of a given animal, and being such a gage it furnishes a convenient method of estimating the effect of any environmental condition on fertility. Since one of the chief problems with which this research had to deal was the effect of low calcium in the diet on fertility, the observation of the effect of such a diet on the intra-uterine mortality offered the best means of arriving at that end. There is still another fact in regard to reproduction in the rat which makes this method of investigation even more reliable than it would be in other animals, and that is that the ovary is entirely enclosed in a capsule into which the tube opens so that no ova can be lost. The number of corpora lutea of pregnancy will then be an accurate index of the number of eggs that are shed at a given ovulation; and when this figure is compared with the number of young at birth, the intra-uterine mortality can be figured.

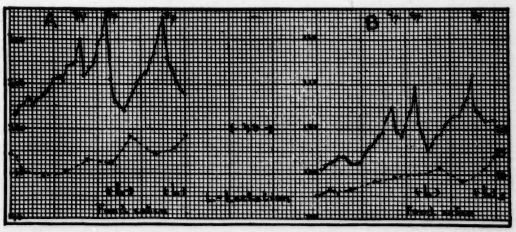

Fig. 5.—Typical weight charts of mothers undergoing pregnancies and lactations: rat 47-20, diet A; rat 6-30, diet B.

21. Long, J. A., and Evans, H. M.: Anat. Record **18**: 449, 1920. Evans and Bishop (footnote 19).
22. MacDowell, E. C.: Personal communication to the author.
23. These analyses were carried out by Dr. L. T. Fairhall according to the method of Sherman, H. C., and MacLeod, F. L.: J. Biol. Chem. **64**: 429 (June) 1925.
24. King, H. D.: Anat. Record **20**: 321, 1921.
25. Robinson, A.: Edinburgh M. J. **26**: 137, 1921.
26. Corner, G. W.: Year Book 22, Carnegie Inst. of Wash. Dept. of Embryol., 1922, p. 83; Am. J. Anat. **31**: 523 (May) 1923.
27. Hammond, J.: J. Agric. Sc. **6**: 263, 1914; **11**: 337, 1921.

RESULTS

With this explanation of the methods used and the reasons they were chosen, we are now ready to discuss some of the results. It would be too tedious and take us too far afield to do this in detail involving, as has been said, some 200 operations and the birth of well over 1,200 young. These figures will be published later

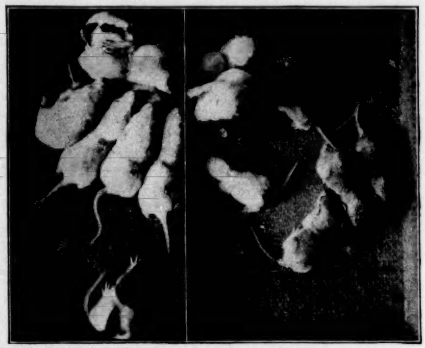

Fig. 6.—Young nursed by mothers on diets A and B (total litters): mother on diet A, 47-20; mother on diet B, 6-30; first lactation.

in full. At this time a broader view of the results as a whole is all that will be profitable. These results are summarized in table 3.

It will be seen that the mortality on diet A (the control) was approximately 20 per cent. This figure is a good deal lower than one reported by Long and Evans,[18] which was around 33 per cent. This lower mortality tends to demonstrate the fundamental excellence of the diet from a reproductive point of view. It is an interesting question as to why this diet showed a lower mortality (and this was so even when the calcium was very low in diet B) than did that of Evans, and one that needs careful investigation. I am inclined at a guess to attribute it to the cod liver oil. The mortality, then, for diet A was 20 per cent and that for diet B practically 25 per cent. With the large numbers involved, even this relatively small difference becomes significant and it can be definitely stated that low calcium increases intra-uterine mortality. This fact becomes even more apparent when only the most complete figures, i. e., those from the first two pregnancies with each rat, are used. Then the mortality for A is found to be 16.4 per cent, and that for B, 24.4 per cent, a difference of 8 per cent.

TABLE 3.—*Effect of Diet on Intra-Uterine Mortality*

	No. Rats	1st Preg. Corp.	1st Preg. Yng.	2nd Preg. Corp.	2nd Preg. Yng.	3rd Preg. Corp.	3rd Preg. Yng.	4th Preg. Corp.	4th Preg. Yng.
Diet A.....	28	253	232	206	152	145	107	59	37
Intra-uterine mortality		91.7%		73.8%		73.7%		62.7%	
Diet B.....	35	293	237	314	222	222	160	120	94
Intra-uterine mortality		80.9%		70.7%		72.0%		78.3%	

Diet A. 663 Corp. 528 Yng. Mortality 20.4%
Diet B. 959 Corp. 722 Yng. Mortality 24.8%

Results are more striking if data from first two pregnancies only are included in each case.

Diet A. 459 Corp. 384 Yng. Mortality 16.4%
Diet B. 607 Corp. 459 Yng. Mortality 24.4%

Another fact came from a careful study of the records, and that is that this increase in the mortality seemed often to be an individual affair. Some of the animals on the low diet failed to show any decrease in fertility; others on the control diet showed definite decreases; but, taken all together, the preponderance was all on the side of the low calcium. Some of these animals even showed complete absorption of all fetuses when such were absolutely demonstrated to have been present. Figures 4 and 5 are typical records of animals on the two diets. The increased mortality on diet B was evident in another way. The number of corpora per pregnancy was practically identical on the two diets, but the number of young born per pregnancy was distinctly larger on diet A.

Roentgenograms of the mothers' bones (fig. 1) and analyses of their bodies (table 5) showed only a very slight depletion in calcium even when three and four pregnancies had been undergone. Furthermore, contrary to expectation, the young at birth weighed to the hundredth of a gram as much on the B as on the A diet, and analyses (table 4) of the young showed a normal calcium content. This was very surprising until the amount of calcium (fig. 12) eaten by a mother on diet B for the twenty-one days of the pregnancy was figured up and found to exceed the very low calcium content of an average litter of eight new-born young. The explanation then becomes apparent. With the rat, the young at birth are so largely cartilaginous that there is not the same relative drain on the mother for calcium as is seen in the larger mammals (including man). In this connection it is interesting to recall Hart and Steenbock's [2] work on the wheat plant in which they found that low calcium caused the premature birth of dead calves. For there to be an equal calcium drain with the rat, one must therefore study the effect of low calcium on lactation. In other words, pregnancy in a large mammal is equivalent to pregnancy plus part of lactation in a small one.

Fig. 7.—Young from litters shown in figure 6.

What this drain of lactation must be is shown by the calcium figures in figure 12. There the actual analyses of five young at weaning on the two diets are shown graphically. These figures may be compared with the amounts of calcium furnished by the diets. Diet A is obviously adequate and the young are reasonably normal (see figs. 6, 7, 8 and 9). Diet B, however, is totally inadequate. In order to furnish the calcium actually found in the bodies of the young nursed by mothers on diet B, the calcium for these young nursing rats could have come only from the mothers' own bones and teeth. The analyses of the mothers (table 5, fig. 12) and the roentgenograms of their bones (figs. 2 and 3) actually demonstrate that this was the case. The total calcium of the A rat, 2.812, should be compared with 1.540, the amount for the B rat.

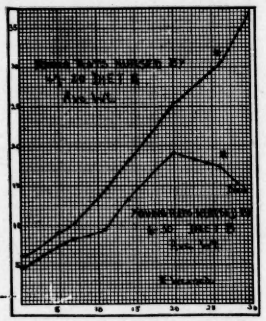

Fig. 8.—Growth curves of individual young reared by mothers on diets A and B; mothers same as in figures 6 and 7.

In all, twenty-five lactations were observed and careful records kept as to the growth of the young. The mothers on A were able to bring much larger litters to weaning than could those on B. It was rare for the latter to be able to handle a litter of more than four, while some of the A mothers raised litters of six and seven easily. In eight instances young were transferred from a B to an A mother at birth, and vice versa. These experiments, while not absolutely conclusive, showed that the A mothers were slightly better able to raise B young than were the B mothers A young. The young that survived weaning in all the lactation experiments have been preserved for further breeding. It will be interesting to see whether stunting in infancy tends to produce sterility or low fertility later in life.

TABLE 4.—*Calcium Content of Young Rats from Mothers on Diets A and B*

NEW-BORN	
Average calcium content of normal rats from Sherman	0.0108
Average calcium content of 17 rats whose mothers were on diet B	0.0109
13 DAYS OLD	
Average calcium content of 13 day old rats from Sherman (estimated)	0.1189
Average calcium content of 4 rats whose mother was on diet A	0.0851
Average calcium content of 4 rats whose mother was on diet B	0.0536
26 DAYS OLD	
Average from Sherman (estimated)	0.2650
1 young from mother on diet A	0.2200
1 young from mother on diet B	0.1535

TABLE 5.—*Calcium Content of Adult Rats*

Average calcium content of adult female rats which had reared no young from Sherman (age, 266 days)	2.746
Average calcium content of average female rats which had reared young from Sherman (age, 401 days)	2.651
Calcium content of rat 47-20, which had reared two litters on diet A (age, 350 days)	2.812
Calcium content of rat 17-8, which had given birth to four litters on diet B, but had reared none of them (age, 385 days)	2.631
Calcium content of rat 6-30, which had reared two litters on diet B (age, 350 days)	1.540

The appearance of the mothers (fig. 10) on the low calcium was striking. Their weights (figs. 4 and 5) were normal and they reproduced rather better than the average (though less well than the controls). Furthermore, their resistance to disease and operative infections was extraordinary. But, compared with the controls, they looked old. Their gait was often peculiar, as noted by Simmonds,[5] and they moved much more slowly than normal. The hair and teeth also showed definite changes. The coats were rough and there was a distinctly greater tendency for the hair to fall out. The changes in the teeth were perhaps most striking of all. For a rodent, the diet, being a soft paste, was of an abnormal character. This was shown by the occurrence of some caries of the teeth on diet A. But while there were only two instances out of twelve jaws examined on diet A, there were seven out of nine on diet B, which showed distinct decalcification and cavity formation (fig. 11).

CONCLUSIONS

1. Diets low in calcium do not produce sterility in the adult rat but they do affect the fertility by increasing the intra-uterine mortality.

2. In the rat, pregnancy makes relatively small demand on the mothers because the young are largely cartilaginous at birth. Even when the diet is very low in calcium the fetus is normal at birth both in weight and in calcium content. To a certain extent, it acts as a parasite on the maternal organism and draws its calcium from her reserve. This is shown by analyses of the maternal calcium, by roentgenograms of the bones, and by the specific decalcification of the teeth.

3. In the rat, all these effects are intensified by lactation. The mother rapidly loses calcium from her body to supply the needs of the growing young; but the young are now not able to get all they need and soon show signs of a lack of calcium by stunting, weakness and often death. This is to be contrasted with the fetal ability to live at the expense of the mother. The difference is probably not, however, due to a physiologically different principle, but to the much greater needs of the growing young and the increasing resistance of the maternal organism to sacrifice its reserves. That this is perhaps so is shown by the fact that low calcium causes the death of the fetus even late in pregnancy with the cow.[2]

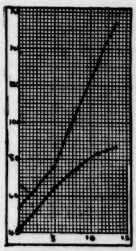

Fig. 9. — Growth curves of total litters reared by mothers on diets A and B; mothers same as in figures 6, 7 and 8; upper curve, litter of nine nursed by 47-20, diet A; lower curve, litter of nine nursed by 6-30, diet B.

4. Lastly, there is, it seems to me, a real lesson to be drawn from this study in regard to the dietetic management of pregnancy and lactation. There must be an adequate source of calcium in the diet of the pregnant and nursing woman if these functions are to be carried out normally and with a minimum of such disturbances as caries, stillbirths and failures of lactation.

321 Dartmouth Street.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. DICKINSON AND CARY, AND MACOMBER

DR. GEORGE GELLHORN, St. Louis: I am not as pessimistic regarding the operative cure of female sterility as is Dr. Cary. In fact, I have eight living children to my credit in some forty salpingostomies. To be sure, I have never incised an abdomen primarily for the purpose of opening occluded tubes, but when

I have found such tubes in the course of a laparotomy I have often slit the closed fimbriated end open and stitched the flaps back. If the occlusion is due to adhesions caused by an appendicitis or by a pregnancy in the other tube, the results of salpingostomy are more promising than when the closure is due to an inflammatory process within the tube itself. It is possible, however, that the preliminary use of nonspecific protein therapy, for example, in the form of milk injections, may even in these cases render the outlook more hopeful. The operative technic, too, has a great deal to do with the final success, and it is essential that there should be no bleeding whatever around the newly formed ostium of the tube. While I differ from Dr. Cary on the question of salpingostomy, I want to stress heavily what he has said regarding the share of the male sterility. His estimate of 25 per cent is very conservative. Others have put it much higher, and physicians who are consulted for sterility should bear that in mind, and should not perform any operation nor permit any operation to be performed until the cause of the sterility is definitely located in one or the other partners. This seems to me a very fundamental and self-evident postulate, and yet, from daily experience I am convinced that it is frequently ignored. Therefore, it should come from us, as an authoritative body and part of the American Medical Association, to go to the profession at large, not to subject any woman to treatment or operation for sterility until it is definitely established who has caused this sterility, and who really requires any treatment for it.

Fig. 10.—Appearance of rat 47-20, diet A, and rat 6-30, diet B, after first lactation.

DR. JAMES F. COOPER, New York: I wish to call attention to the relationship between the use of contraceptives and sterility. There is an impression in some quarters that the use of contraceptive measures per se is a cause of sterility. This, I feel, is one of those generalized statements which has never been substantiated and which is very misleading. The use of intra-uterine stems, as spoken of by Dr. Cary, can well be conceived as being a cause of sterility because of the irritation, the erosions and resulting infection to the uterine body and the tubes caused by maintaining for a long time the patency of the cervical canal. Also, it happens that some women who are driven in their desperation to use contraceptive methods will use some very irrational thing, such as a mercuric chloride tablet, even without any dilution. Such cases have been reported, and have had a rather serious outcome. The adoption of any other ill advised method recommended by a friend may have been a cause of sterility, but the point I wish to bring out is that contraceptive measures per se are not necessarily a cause of sterility, and that there are many methods which have been used over long periods of time without having any sterility following their use. This statement is based on observation of more than 5,000 cases in the birth control clinic of the American Birth Control League Research Department in New York. There is other information from many sources in Europe where contraception has been practiced for a long time showing that there are rational methods of contraception which do not result in sterility and which under medical prescription and supervision are perfectly safe to use from this standpoint.

Fig. 11.—Jaws from rat 55-93, diet A, showing normal teeth, and from rat 11-33, diet B, showing typical caries; both rats had undergone three pregnancies, but rat 11-33 had in addition one period of lactation.

DR. WILLIAM H. CARY, New York: I fully agree with what Dr. Gellhorn says about his results in the patients he operated on. I think I could agree with him if frequencies of operating were not for sterility. His results are possibly due to the fact that he corrected other pelvic conditions that incidentally aided the tubal occlusion.

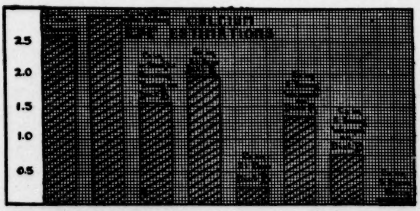

Fig. 12.—Effect of low calcium diet on reproduction.

DR. DONALD MACOMBER, Boston: I want to congratulate Dr. Cary on his presentation. He stressed a very important point in regard to male responsibility. I think there is more to be said on that perhaps that he had time to say, and I want to add that I believe one man should be the one to make diagnoses in both parties. I do not believe there is any one who has just seen the man alone or the woman alone who can possibly make an accurate diagnosis in any case of sterility. Our statistics on the male element may be of interest. We

find that, up to 1922, 22 per cent of our cases showed either a pure male element or a very large male element causing the sterility. Since then our attention has been drawn much more forcibly to it, and we now find practically 45 per cent of cases in which there is a very large male element. I think those figures speak for themselves. I want just to stress two or three practical points of importance in regard to calcium; calcium in the human being or in the cow or any other large farm animal (and this work has all been done carefully) is important in the prevention of miscarriages and is important in the prevention of stillbirths. It is important as far as the mother is concerned during pregnancy in saving her teeth, and in her general health. The baby, as a rule, gets all the calcium it needs during pregnancy. It is the mother who suffers if the diet during pregnancy is inadequate. During the lactation period the diet of the mother is very important for the proper growth of the baby. The child, to have the proper growth, must have the proper calcium in the mother's diet. Of course that is not the only element, but it is the only one which I have time to stress. The diet for the pregnant mother must contain an adequate source of calcium, and that is best obtained from milk or milk products. The cow gets that calcium from green grass or green vegetables, but for a human being to obtain sufficient calcium from green vegetables is quite an impossibility. The human being has to obtain that calcium from the milk and other milk products. Eggs contain a lesser amount and green vegetables contain a notable amount. The phosphorus is supplied from the milk and from the vegetables, and the vitamin D, which is essential for the proper metabolism of calcium is found in leafy vegetables, green vegetables, in germs of grain to a certain extent, and, when there is any question of deficiency, in cod liver oil.

THE TREATMENT OF CONTRACTURES AT THE KNEES *

JOHN PRENTISS LORD, M.D.
OMAHA

My purpose in this presentation is to call attention to the incidence of deformities and disabilities of the knees, which could very often be lessened or prevented by an earlier recognition of the potential dangers incident to the indifferent management and lack of mechanical treatment, in cases of paralysis, arthritis and other causes of knee contractures.

It is not my purpose to discuss knee contractures of all kinds. The discussion of spastic contracture, for instance, would lead us too far afield. Nor is it my purpose to cover this subject in its many phases. The flexed knees due to neurologic disease and cicatrixes from burns will not be individually considered for obvious reasons.

The contractures of the knees which are very frequently encountered by the orthopedic surgeon are the result of infantile paralysis which has left the strong flexors to overcome, more or less completely, the paralyzed extensors. The degrees of severity are variable—from slight to the most extremely resistant and fixed deformities. The latter are found in cases which have begun in infancy or early childhood and have existed for years, perhaps ten to twenty or more; in these cases growth, of course, has contributed very largely to the development of extreme pathologic displacement of the tibia. Coincident with this malposition, there is a joint functionless in a considerable part of its cavity. Articular surfaces are less than normal, and the posterior ligaments are shortened. The joint surfaces are altered, the articular cartilage having disappeared where it has been functionless for years. The muscles, tendons and fascia have taken on adaptive changes, and the bones are atrophic from nonuse and an impaired circulation. The posterior displacement of the tibia varies greatly. Sometimes this is very extreme.

Contracture in the knee resulting from arthritis varies from those of the foregoing in that the joint may be more or less obliterated from tuberculosis or other disease, with resultant fibrous or bony ankylosis, and atrophic or hypertrophic changes. In any variety of contractures that have held the knees flexed during a considerable period of the patient's growth, there have also developed pathologic dislocations of extreme degrees, because the growth of the condyles has extended the joint surfaces over and forward to override the tibia, and they thus become a mechanical bony block which results in a formidable barrier to the straightening process. Contractures of 90 or more degrees are very disabling, and the patient is a confirmed cripple. This is especially true if there is any degree of arthritis remaining, and because of pain, weakness and deformity, there is an inability to stand or walk. Only in the cases of less severity, can standing or walking be done. Sometimes it is accomplished when the knees are supported by the hands or by braces.

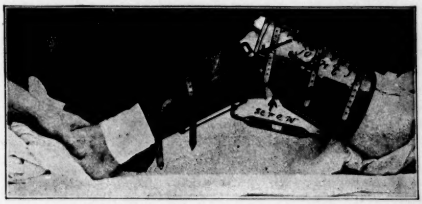

Fig. 1.—Author's knee contracture brace.

These patients, therefore, are not only badly deformed but are severely disabled and call for special, skilled treatment, mechanical or surgical, to make their limbs straight, and satisfactory function possible.

The treatment of first consideration and importance is the prevention of these deformities by extension, proper splints, plaster or braces. These extreme cases of deformity should never occur. They doubtless will be less frequent in the future, now that orthopedic principles of treatment are more generally understood—notably the extreme necessity for immobilization in arthritis, coincident with which is traction and graduated extension to correct the deformity and prevent ankylosis, especially in a vicious position. It has been my observation that many contractures occur after the cases have been dismissed by the physician or surgeon and the splints, casts or braces have been discarded too soon; and flexed knees have resulted. The majority of the cases, however, have resulted because of a seeming lack of appreciation of the necessity of inaugurating the methods of prevention.

Most resistant contractures can be straightened by one of the many varied devices used for this purpose. The gradual method is much to be preferred, and the older methods of forcible correction are much less used, especially in arthritic cases. In general, forcible correction is poor practice, and is, except in recent cases of the lesser degrees of severity, bad practice.

* Read before the Section on Orthopedic Surgery at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

The treatment of contractures at the knees varies with individuals. It cannot be said to be standardized. Indeed, there are many good, even innumerable devices of great merit, which if intelligently applied, will effect results. That most physicians thoroughly understand the principles and necessity for prevention is doubtless the reason why there are not many more cases of this deformity and disability. These cases are relatively so common, however, in the practice of the orthopedic surgeon that I am prompted to discuss their treatment with a desire to standardize methods of treatment with appropriate apparatus, and thereby lessen the frequency of the occurrences of this deformity and help eliminate loose, haphazard and expectant methods which may prove inefficient with too large a percentage of deformities.

It may be said that cases of extreme deformity, extending over a long period, are difficult of correction, not only because of bone and joint changes but also on account of shortened and contracted soft tissues, and the considerable degrees of pathologic dislocation. It is because of this factor that special devices are necessary to overcome this condition.

Orthopedic surgeons in all generations have recognized the advantage of special apparatus and have contributed their inventions to the profession, but many of their devices have survived only in the literature, and then been overlooked or forgotten. It would seem desirable that some principles should be more consistently followed. We, as orthopedists, continue to get cases that have had no systematic or even intelligent treatment. It should be stated that cases treated with apparatus that will immobilize arthritic cases, and gradually and painlessly extend them, will effectively prevent contractures, and in the paralytic patient, simply the maintenance of extension will forestall fixed flexion.

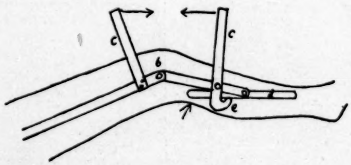

Fig. 2.—Lemuel D. Smith brace, to be used with extension and twisted rubber tubing between arrows.

I have devised and used a mechanism that has been efficient in meeting and correcting the troublesome and persistent deformities here especially considered. This device was formerly used, incorporated in plaster. In the earlier stages of treatment in arthritic cases, plaster seems especially desirable because it affords greater stability and fixation, but the time soon comes when a removable and adjustable appliance becomes necessary and very desirable for the purpose of applying physical remedial measures of treatment.

More recently this appliance has been incorporated into a brace, and has been found to be sufficiently stable to eliminate the necessity for the use of plaster, which is desirable for reasons previously given. My justification for introducing another mechanism to the already large number is that it has the ability to force the tibia forward in an effective manner, as well as to straighten the leg. It is not so cumbersome but that it may be conveniently worn during most of the treatment; it is removable, and does not interfere with walking.

Almost any degree of fibrous ankylosis yields to the continued force of an efficient appliance, and if we had months or possibly years for its continuous application, there would be a good prospect for succeeding in many of the most difficult types encountered, but in the cases of the most formidable character there may be reasons also why it is impracticable or impossible to consume a great amount of time. It therefore becomes necessary to straighten many limbs by operation. In the selection of an operation, the Osgood osteotomy is deservedly popular. The amount of bone removed necessarily varies to meet the requirements in extreme cases.

In a recent case a man, aged 24, who had infantile paralysis at 18 months with contractures so extreme that his heels were against his buttocks and his knees against his chest, accomplished locomotion by raising himself with his hands and lifting his crumpled feet and legs and thus hopped about on his hands. Most of the time he sat on his paralyzed and useless feet in talipes equinovarus. He had walked for four months as a child before 18 months of age and had not walked for twenty-two and one-half years since that time.

The feet were first corrected by astragelectomies and Achilles lengthening; the knees had Turner splints applied for four months. When they had produced corrections to 90 degrees, the limit of forcible correction seemed to have been reached. The hamstrings were then lengthened by their partial divisions, stretching and slipping, and the posterior ligaments were cut. Osgood osteotomies, with 2½ inches of bone removed to permit a semblance of straightening and to retain the proximal and distal fragments, long malleable wire drills were left in situ until soft union was obtained, when apparatus was again used.

In the later stages of the treatment, Thomas calipers were used to complete the straightening and to give necessary support until complete bony union was secured. By their use, he walked much earlier, and the removable splints permitted physiotherapeutic treatment of the knees, feet, hips and muscles.

This man, who was a confirmed cripple, is now conducting a plating establishment, and he drives his automobile. He is still under treatment for his knees, feet, hips and muscles, but he has been walking by the aid of crutches and the Thomas caliper since November. The treatment began last May and the patient was hospitalized until November. It should be stated that part of this time was consumed in overcoming the hip contractures, which were most extreme, the knees having rested against his chest. Soutter operations of the most extensive and radical type were done, to overcome effectively these thigh contractures and the lordosis.

It is my opinion, based on observation, that the medical profession and the general surgeons need to have their attention drawn to this subject, and while it may seem to be more or less elementary for the section on orthopedic surgery, nevertheless it has always been a problem for our predecessors as well as ourselves, as evidenced by the numerous ingenious devices devised. These have varied in efficiency and none have been so good but that many present-day orthopedists have made appliances of their own in their effort to secure the most efficient means for the correction of what so often proves to be a most stubborn and resistant deformity. It was in my own perplexity that I entered the field of invention to meet the indications more fully in my

cases, and I present the result of my endeavors in the appliance shown in figure 1.

This device exerts as much force as or even more than is tolerable (which may be said of many appliances), and it is therefore very strong and efficient; but its chief merit is the ability to exert by a means of the screw traveler, a maximum of force behind the upper part of the tibia and thus prove itself of efficient service in overcoming, as fully as may be, the backward dislocation.

One of the devices successfully used at the Massachusetts General Hospital (fig. 2) is especially designed to exert a corrective force behind the tibia.[1]

The Thomas walking caliper, the splint of so many varied and practical uses, serves a most excellent purpose in contractures that are largely overcome and in the cases in which the patients need to be gotten on their feet, especially those that are not equal to weight bearing on account of arthritis, or soft union after osteotomies. Its simplicity, security and ease of handling by the patient also commend it.

Contractures at right angles or more, which have occurred during the growing period especially, have more or less severe pathologic dislocation, and furnish problems in mechanics, and a considerable barrier to reduction by the usual or ordinary methods. Passing notice, however, will be given to some of the means for exerting lesser degrees of force and traction in common use: weight and pulley overhead with counter pull on calf (fig. 3); extension, wedge casts; the methods of Freiberg, Thomas, Billroth, Young,[2] Turner, Schaffer,[3] Smith, Hoke, Campbell, Lord, Bonnet,[4] von Strohmeyer,[5] von Bruns, von Quaas,[6] Heather-Biggs,[7] Eschbaum[8] and Schede.[9]

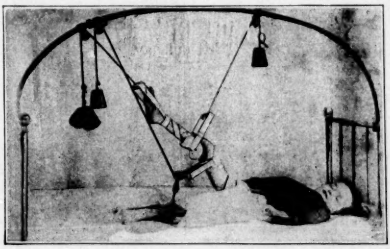

Fig. 3.—Extension for knee contracture (after Whitman).

The ordinary three-point brace for night wear especially is usual for the prevention of recurrence, though not very efficient for correction purposes.

Other appliances devised for the same purpose those of von Burow, Schanz, Lange, Turner,[10] and Roberts.

ABSTRACT OF DISCUSSION

DR. CHARLES A. PARKER, Chicago: If this device does what Dr. Lord says it will do, it is one of the additional useful devices for this very serious condition. How serious it is may be concluded from the fact that contractures at the knees are the most common deformity interfering with or preventing walking. Dr. Lord has suggested the prophylaxis of the contracture, and as orthopedic surgeons we must carry this in mind. It is not infrequently neglected in the very best circles. Patients will enter a clinic with a contracted knee (I refer particularly to the chronic arthritis cases), and the knee will be bent 45 or 90 degrees. They will have blood tests made and every kind of an examination, and yet they will come out of that institution with a bent knee that nobody has attempted to straighten, though it is the cause of the trouble. The devices correcting the knee are very well illustrated, representing the femoral condyles and tuberosities of the tibia. Normally, these parts glide most beautifully on each other until they come into a straight line. Abnormally, the tuberosities dig in and do not glide, and if we straighten the knee we get into a position so dangerous that dislocation may happen. All flexures of 45 degrees or less from straight can be corrected by more or less force; that is, in the fibrosed conditions of arthritis. With a flexure of more than 45 degrees the danger of dislocation obtains. This can be overcome directly in the operating room with little apparatus. The surgeon should get a board that fits up and down on the front of the shin and runs past the knee, and pad it out about an inch from the knee. The leg part should be wrapped tightly to the board, which should then swing as in extension of the knee. It pulls, forward and up if that is possible. However, if the ligaments are too tight, it will be impossible to accomplish much with any apparatus. When the limb is straight, a cast is applied. The slow method without anesthesia is adapted to many cases. Old persons and those suffering long from arthritis do not want to spend much time; they want to get over with it in a hurry and go home. I do not promise any one, however, that I will obtain a straight leg. I will try to obtain a straight leg, but if I do, I can usually prove to patients that a straight leg that they can walk on is much more useful than a bent leg that is painful.

DR. EARL D. MCBRIDE, Oklahoma City: It has been my experience with a turnbuckle brace at the knee that the force is applied at the opposite end of the turnbuckle. In trying to straighten a leg in a very difficult case recently I took the opposite balance, affixing the center attacks at the knee, inverting the rods, and screwing from the center so as to force the line of gravity forward parallel to the knee joints rather than vertically. I should like to ask Dr. Lord whether he has found that when he gets the knee at an angle of about 15 or 20 degrees it is difficult to get a brace that will not push forward and cut the leg at the back of the thigh and back of the calf, causing some little discomfort to the patient.

DR. JOHN P. LORD, Omaha: I quite agree with all that has been said. In answer to Dr. McBride's question, I find that a turnbuckle alone is not adequate. That is not any better than anybody's brace. This screw at the knee is ample to make all the correction that the tissues will bear or that the patient can endure. This is only a supplement. In starting out with the use of this turnbuckle, however, it is to be attached as high up behind the tibia as possible to give a forward thrust as well. The cuff inside the brace is intended to come out over the knee as much as may be necessary, and this aids in holding the knee downward while the brace is exerting the force forward on the posterior upper part of the tibia.

1. Smith, L. D.: J. Bone & Joint Surg., October, 1925.
2. Young's extension brace (Young: Orthopedic Surgery).
3. Schaffer's appliance (Schaffer: Selected Essays on Orthopedic Surgery).
4. Appareil de Bonnet pour mobiliser le genou (Calot: Orthopédie indispensable).
5. Von Strohmeyer: Kniestreckmaschine.
6. Von Quaas: Kniestreckmaschine.
7. Vorrichtung zur Korrecktion von Kniekontratturen mit Subluxation des Unterschenkels nach Heather-Biggs.
8. Reduktionsapparata, nach Eschbaum (Joachimsthal: Handbuch der Orthopädischen Chirurgie).
9. Mobilisierungsschiene fur Kniegelenk, nach Schede, in Lange: Lehrbuch der Orthopädie.
10. Turner's Appliance, in Jones, Robert: Orthopedic Surgery of Injuries.

The Ideal of Health Education.—Health education can be promoted only by emphasizing all aspects of health—physical, mental, social, moral. The teacher of health should look for normal development of the child from all of these points of view. The ideal of health is not mere freedom from obvious deformities and pathological symptoms. It is the realization of the highest physical, mental and spiritual possibilities of the individual.—Report, Joint Health Committee, Health Education, p. 23.

BILATERAL PYELO-URETEROGRAMS *

ABRAHAM MATTES, M.D.
NEW ORLEANS

Since the use of opaque solutions, as introduced by Voelcker and von Lichtenberg [1] in 1906, pyelography has made tremendous strides. The toxicity of the agents used has been lessened, and the roentgenogram has been materially improved.

The efforts of Braasch,[2] and his writings from 1909 and onward stimulated its use and proved its value. At the time of its introduction, collargol was most generally used. Reports as to its toxicity did not find their way into the literature prior to 1913, when Braasch [3] stated that he had observed the retention of the fluid for as long as several weeks. In 1913, Thomas [4] of the Mayo Clinic stated that the overdistention of the pelvis and the resulting colic might be caused from the use of the syringe and suggested the gravity method. He devised an apparatus that bears his name.

A summary of the writings in 1914 discloses several interesting reports as to the injury done by the injection of collargol; in one case reported by Mason,[5] 25 cc. of 10 per cent collargol was used in hydronephrosis; in another,[6] 12 cc. of the same solution was used in hypernephroma. In 1919, Weld [7] reported a death following the use of thorium nitrate. There have been other instances reported of harmful effects resulting from the injection of various mediums into the kidney pelvis, but no mention is made in any of these cases of very small amounts being used. In all cases, the attempt was made to distend the pelvis of the kidney.

We have passed through that period characterized by the use of colloidal solutions, later thorium nitrate and emulsions of opaque mediums, and in the last few

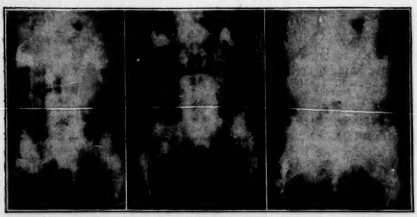

Fig. 1 (Mrs. R.).—*A*, injection of pelves with 4 cc. of 40 per cent sodium iodide solution; catheters in place. *B*, injection of ureters and withdrawal of catheters; rapid emptying time of right ureter may be noted. *C*, five minutes later; solution present in right pelvis; this with the rapid emptying time previously noted suggests an adynamic pelvis and a hyperactive ureter; the symptoms caused by this condition disappeared with ureteral dilation.

years have been using sodium bromide, from 15 to 40 per cent, and now sodium iodide in solutions of from 15 to 40 per cent. Weld [8] reports that sodium iodide, as much as 50 cc. of a 25 per cent solution, when injected intravenously, produced very slight to no reaction in animals. He recommends the use of sodium bromide up to a 20 per cent for pyelography, and states that sodium iodide when used in the renal pelvis often causes considerable local irritation (in solution of from

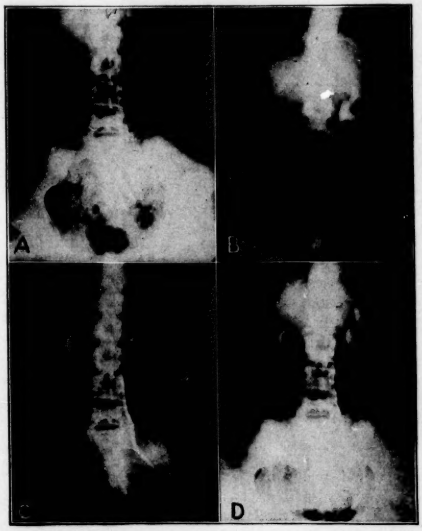

Fig. 2.—*A*, opaque catheters to each pelvis. *B*, 4 cc. of 40 per cent sodium iodide solution injected in pelves; leakage along catheter, outlining ureter. *C*, injection of ureters and withdrawal of catheters; from 2 to 3 cc. of solution used. *D*, five minutes later; retention in left pelvis and entire ureter and to a lesser degree in right pelvis and lower ureter.

20 to 25 per cent) and therefore does not recommend it. This statement does not coincide with my experience. Braasch, in his papers of 1913, states that pyelograms are contraindicated in large hydronephrosis, and in malignant tumor cases, and that pyelography should not be employed, unless the existence or the nature of a lesion in the urinary tract cannot be diagnosed in any other way. To lessen the danger, the gravity method of Thomas or the manometer method of Tennant [9] is advised. Mason states that it is also contraindicated in infection, and when the kidney integrity is impaired.

Because fatalities have been reported following the injection of fluid into the kidney pelvis, and harmful reactions have resulted from its employment in other cases, a number of urologists discontinued the taking of bilateral pyelograms in order to lessen or obviate these dangers. Unilateral pyelograms have been the demand in a number of centers in America as well as abroad. It is due to the work of those who still feel that there is danger attending the injection of the pelvis that unilateral pyelograms are still in vogue in these centers. While the number of those taking bilateral

* Read before the Section on Urology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Voelcker and von Lichtenberg: München. med. Wchnschr., 1906; Cystographie: Beitr. z. klin. Chir., Festschrift f. Czerny, 1907.
2. Braasch, W. F.: Recent Progress in Uretero-Pyelography, J. Michigan M. A. **12**: 189-191, 1913.
3. Braasch, W. F.: Clinical Data on Malignant Renal Tumors, J. A. M. A. **60**: 274 (Jan. 25) 1913.
4. Thomas, G. J.: An Apparatus for the Injection and Lavage of the Pelves of the Kidneys and Ureters, J. A. M. A. **60**: 184 (Jan. 18) 1913.
5. Mason, J. M.: Dangers Attending Injections of the Kidney Pelvis for Pyelography, J. A. M. A. **62**: 839-844 (March 14) 1914.
6. Walker: Pyelography: A Critical Review, Brit. J. Surg. **2**: 128-131, 1914.
7. Weld: Renal Absorption, with Particular Reference to Pyelographic Mediums, M. Clin. N. Amer. **3**: 713, 1919.
8. Weld: Toxicity of Pyelographic Mediums, J. Urol. **3**: 415, 1919.
9. Tennant: Cause of Pain in Pyelography, with Report of Accident and Experimental Findings, Ann. Surg. **57**: 893, 1913.

pyelograms has increased in the last few years, there are still too many pioneers in urology who look askance at the employment of such a measure. In fully 25 per cent of the cases, unless a bilateral pyelogram is taken or a picture of the opposite side taken later, the diagnosis will be faulty or incomplete. Bilateral pyelograms should be employed in each and every case, irrespective of the diagnosis, condition of the patient or the urgency of the situation, provided that there is need for a pyelogram. In other words, never one without two, and two with perfect safety.

The maxim occasionally seen in urologic journals warning against the taking of bilateral pyelograms, and stressing the possibility of attending dangers, as anuria, partial or complete, and colic, should be changed and the value of the bilateral method stressed. It is due to the improper method of filling the pelvis, reinforced by the use of toxic solutions, that the so-called unilateral bugaboo began, was propagated and has continued to this day. Its falsity has lately been announced in the writings of the present-day leaders by the large number of bilateral pictures taken, as evidenced by their frequent appearance in lantern slides and as the illustrations in articles.

A NEW CONCEPTION OF THE RATIONALE OF BILATERAL PYELOGRAMS

The pelvis of the kidney, as well as the ureter, is a muscular contractile organ that carries the urine from the kidney into the bladder. The portion of the pelvis that drains the calices or milks them is the more contractile part of the pelvis. Waves of contraction are propagated from the calices, secondarily to the pelvic sac and lastly to the ureter. The capacity of the pelvis has been erroneously stated to vary from 3 to 8 or more cubic centimeters by different observers. On the operating table, it is always seen as a flat sac, usually with its anterior and posterior surfaces in contact, and this is the picture always seen at necropsies. The capacity, as determined by several thousand cystoscopies, is never more than from 2 to 3 cc. and usually is 1 or less than 1 cc. It is rare to find a normal pelvis containing more than 3 cc. of fluid.

If the functioning capacity of the pelvis is 3 cc. or less, the injection of an opaque medium of like amount, if nontoxic and one that can produce a dense shadow, is the agent *par excellence*. Likewise, if it is harmless, there can be no added danger in taking a bilateral picture. I have been taking bilateral pyelograms and doing nothing else but take bilateral pyelograms ever since the introduction of sodium bromide into urology. The number of pictures taken is more than a thousand and I know of no fatality that has attended their use. If the secret lies in the nondistention of the pelvis of the kidney and the use of small amounts of an opaque solution, why does the average urologist of today fill the pelvis either until the patient complains or, having used from 8 to 10 cc., he fears to inject more? It is due to the persistence of such technic that bilateral pictures and pyelograms are not more commonly employed in diagnosis.

PELVIC CAPACITY

The pelvic sac can be ballooned or dilated by the use of fluid. This ballooning is nothing more than the distention of the sac; therefore most pictures taken of the pelvis show it to be dilated or distended. As the pelvis is a flat sac, why should we not attempt to visualize it as such in our pyelogram? Is distention necessary in order to obtain a good picture? Since the injection of from 1 to 2 cc. beyond its capacity does not enlarge the shadow, but only increases its density, the use of larger amounts is unnecessary. Larger amounts dilate the pelvis, give an untrue picture, increase the tendency to discomfort, and cause various other symptoms.

The emptying time of the pelvis must likewise be taken into consideration in the making of any pyelogram. Physiologic function should not be disturbed. The normal pelvis empties itself within from three to five minutes. My experiments have shown that the opaque medium fails to cast a shadow after that length of time. Any method of injecting fluid into the pelvis that requires several minutes will, if the ureter is completely blocked, not give a true picture. Within that length of time, the injecting fluid has been diluted by the urine, or, if there is drainage, it has for the most part run alongside the catheter.

A method that would cast a shadow of the functioning pelvis and ureter in as short a period of time as possible, and that does not interfere with its function, is the physiologic one and should be employed. It requires no gravity outfit and no manometer—only a simple hand syringe by which means small amounts of fluid may be injected. This solution may be sodium iodide or any other agent.

This paper is based on the use of small amounts of fluid, and the nondistention of the pelvis, or the flat sac method. The solution employed was sodium iodide, from 15 to 40 per cent. If 15 per cent solutions are harmful, then 40 per cent should be increasingly so. Reactions should be more common, and alarming symptoms occasionally or frequently seen. With 40 per cent solution, however, I have noted no increase in the percentage of cases showing reactions, and there has been no death. I have used this solution for the last five months in a series of more than forty cases. This concentration has given more uniform results, the retakes have been less frequent, and ideal plates have been more commonly seen. In addition, by instituting time methods in pyelography, I have been able to determine mild degrees of urinary or pelvic and ureteral stasis that would otherwise have escaped my attention. The retention of fluid after five minutes in the pelvis is evidence of retention of fluid, whether aspiration prior to injection suggests it or not.

The taking of time pictures should be encouraged, and all efforts should be made to do for our kidney case what the gastro-enterologist does for his. Serial pictures of the urinary tract will shortly be as common as gastro-intestinal series, and not until then can urologists say that they are doing justice to their patients.

The method that was finally evolved and is now consistently used has for its basis the following routine: (1) lack of preparation of the patient; (2) the use of small opaque ureteral catheters; (3) the instillation of small amounts of fluid, and (4) the use of higher percentage solutions, such as 40 per cent sodium iodide.

No purgatives or enemas are ordered. The presence of gas rarely affects a picture, and all tendency to reflex irritative phenomenon caused by purgation is abolished. The use of small catheters permits of lateral drainage, does not block the ureter, and does not disturb the waves of contraction. This is particularly applicable to strictures of the ureter, to kinks and to ptosed kidneys. The higher percentage concentrations of sodium iodide permit of dilution by the urine, without affecting its ability to cast a shadow.

The catheters are passed to the pelves, or as far as they will go. Each side is aspirated, and the amount of fluid withdrawn noted. Specimens are then collected, functional tests performed, if necessary, and then the patient is subjected to roentgen-ray study. A plain picture is first made, showing the course of the catheters and their relations to all structures. The second roentgenogram follows the injection of each pelvis with from 3 to 4 cc. of fluid. If any pain is elicited or any symptom noted, the injection is discontinued on that side, and an approximate amount instilled on the opposite side. The catheters are plugged during the taking of the pyelogram. The cause of any reaction may be due to the catheter end being in the calix, to the unusual smallness of the pelvis, to some pathologic condition, or to a contraction of the pelvis during the moment of injection. The instillations are made fairly rapidly, within from four to eight seconds.

The third picture is taken following the simultaneous injection and complete withdrawal of the catheters. The amount of solution used is from 1 to 3 cc. to each side. This picture will invariably outline the ureters in their entirety. A fourth picture is taken within five minutes, and later others, if indicated. In this manner, the status of the upper urologic tract can be properly interpreted.

SUMMARY

In more than 1,200 cystoscopies made since January, 1924, bilateral pyelograms were taken in more than 229 cases with no attending fatality, or any really serious complication when small amounts of fluid were used. In forty cases, 40 per cent sodium iodide was used with no increase in the symptoms usually noted.

The flat sac method of instillation is physiologic and does not distend the pelvis or interfere with its function.

The capacity of the pelvis is from 1 to 2.5 cc., and is rarely more than 3 cc.

The emptying time of the pelvis is from three to five minutes.

Time pictures give valuable information that would otherwise be lost.

CONCLUSIONS

1. Bilateral pyelograms, properly made, are safe and are attended with no danger to the patient.
2. The pelvic sac should not be distended.
3. The physiologic function of the pelvis and ureter should not be disturbed in an examination, or the interpretation of the data will be false.
4. A mild degree of stasis can always be determined by time pictures.
5. The taking of time pictures may eliminate the use of bougies for the determination of the presence of stricture or spasm in the ureter.
6. Pain referable to the kidney area frequently shows on examination no more than retention of the pyelographic mediums.
7. So-called pelvic stasis responds to drainage and dilation, with cessation of symptoms.

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ABSTRACT OF DISCUSSION

DR. ALFRED I. FOLSOM, Dallas, Texas: For several years, I have made it a rule never to pass up children with urologic conditions. This is the most neglected field in urology today.

DR. I. G. DUNCAN, Memphis, Tenn.: About two years ago there was an article in one of the journals recommending the use of neosilvol in making pyelograms which appealed to me very much. In my experience, sodium iodide and sodium bromide are not absolutely nonirritating. I have made several cystograms with sodium iodide and have seen patients pass blood for three or four days following this procedure. If it is irritating to the bladder, I cannot help thinking that it must be irritating to the mucous membrane of the kidney. So I began experimenting with neosilvol as a pyelographic medium. My conclusion is that a 35 per cent solution is about right. The 50 per cent solution is too thick to go through the catheter easily, and the weaker solutions do not make good pictures. I fill one pelvis, then inject 3 or 4 cc. into the other side, and make the picture. This is not, strictly speaking, a bilateral pyelogram. It does assist materially in making the diagnosis. I dislike very much to make a pyelogram at the first sitting. We like to collect specimens for examination and culture, then make the functional tests, and at a later date make the pyelograms. Our experience is that the kidneys are quite sensitive to distention at the beginning. Even using salt solution to distend the pelvis will often produce a colic, but after the first time we can make the pyelograms without there being much pain.

DR. DANIEL N. EISENDRATH, Chicago: I heartily endorse the statements of Dr. Mattes in regard both to the value and to the absence of danger in making bilateral pyelograms at one sitting. We have done so in more than a hundred cases without any complications other than the reflex nausea and vomiting and an occasional hematuria, but not more frequently than in unilateral cases. We inject the two pelves simultaneously and make an exposure. We then continue to inject the ureters as both catheters are withdrawn, taking another picture as soon as this has been completed in order to be able to visualize the entire course of both ureters. The secret is to employ a number 5 ureteral catheter, so that any excess of the opaque medium will flow back into the bladder.

DR. W. J. WALLACE, Oklahoma City: I believe in the method of Drs. Mattes and Eisendrath for making bilateral pyelograms. I have been making them for several years without any serious results. I first pass the ureteral catheter, following this procedure by the differential and roentgenogram. Very frequently considerable reaction results from the catheterization. After my analysis and this examination have been made, I make the pyelogram, with very little reaction. This was nicely expressed by Dr. Duncan. Another thing I do is to aspirate the urine in order to determine whether or not there is a small or a large hydronephrosis. After that has been determined, the medium can be injected with greater safety to the patient.

DR. HERMAN L. KRETSCHMER, Chicago: I do not believe that this section should go on record as endorsing bilateral pyelograms without some reservations, because even unilateral pyelograms are often fraught with danger. Very often bilateral pyelograms are made indiscriminately, and not infrequently with serious consequences. I confess that I, too, have made bilateral pyelograms, as I think all of us have, and perhaps still do, but I do not think that they should be made indiscriminately or be endorsed as being free from danger. I think the danger and the complications are due to the fact that when infection is present, the bacteria are carried into the kidney substance; that is, into the parenchyma. The best evidence for this was given many years ago when collargol was used for pyelograms and the particles of collargol were found not only between the tubules but in the glomeruli. I have seen in a kidney that was removed following a pyelogram almost complete infarction of the kidney. Patients have died because of uremia that developed after the making of a single pyelogram, and I do not believe that we, as a section, should endorse the making of pyelograms as being free from danger. The use of small amounts of concentrated solution is a valuable adjunct to the technic.

DR. A. J. CROWELL, Charlotte, N. C.: I do not believe that there is as much danger in the double pyelogram itself as there is in the man who makes it. I think Dr. Kretschmer's warning is a good one; but if we will use a preparation like neosilvol as a pyelographic fluid and regulate the pressure by means of the pressure gage, we are not likely to have reactions following double pyelograms, especially if we use small ureteral catheters as an extra precaution against undue pressure. The point that was brought out about the preparation of the patient

before the pyelograms are made is a very important point. It is unwise in any case to make a ureteropyelogram on first instrumentation. The patient should first become accustomed to instrumentation. Another diagnostic point brought out which I consider quite valuable is the emptying time of the kidney pelvis. This can be ascertained by making a series of roentgenograms. Delay in the emptying time of the kidney pelvis and ureter means ureteral obstruction. It has been the tendency of many of us, especially if we are in a hurry, to stop our investigations when the report comes from the laboratory that the urine is normal, even in the face of definite clinical symptoms, such as undue frequency of urination and pain in a given location. I believe that the ureteropyelogram and the emptying time of the kidney pelvis and ureters will be of value in many obscure urologic cases.

DR. ROBERT V. DAY, Los Angeles: The study of urology and its status in the child today is just where it was twenty-five or thirty years ago in the male, and ten years ago in the female. We must get pediatricians to pay more attention to these matters, and urologists are to blame that this is not done. Urologists must become wide awake as well as equip themselves adequately for the successful practice of urology in children. There are many things that were not mentioned. I have seen renal tuberculosis in children much more frequently than the literature indicates.

DR. GEORGE R. LIVERMORE, Memphis, Tenn.: I think that we are rather obscuring the question, although I endorse what Dr. Kretschmer has said. It is not so much the question of the bilateral pyelogram as the condition of the kidney that must be considered. A single pyelogram in a badly injured kidney, and the other kidney badly diseased, would probably produce the same result that a bilateral pyelogram would. If the kidney function is good, it does not make any difference whether we make a bilateral or a unilateral pyelogram; but if one kidney is badly injured and the other moderately so, and the blood urea and creatinine high, we run a risk in making either a bilateral or a unilateral pyelogram.

DR. B. A. THOMAS, Philadelphia: This is an excellent opportunity for us to apply some of the art as well as the science of medicine. Each case is a study by itself as to whether we shall make bilateral or unilateral pyelograms. I have made many double pyelograms, and believe that this procedure still has to be done in some cases to determine whether disease is present; but I am averse to doing it as a routine and indiscriminately. Each case is a study unto itself, and much discretion on the part of the urologist is necessary.

DR. CLINTON K. SMITH, Kansas City: Dr. Stevens said that the juvenile side of urology has been neglected, and Dr. Folsom has demonstrated that this is true. I think the impression prevails among many urologists that it is difficult to use these methods in children. There is nothing particularly difficult if one is provided with the necessary instruments. The work is tedious, but offers much knowledge that is well worth while. I think any of us who have been doing any amount of this work are impressed with the idea that much of the adult urologic disease has its beginning in childhood, but our experience as yet has hardly been sufficient to prove this. I believe the time will come, however, when we shall regard many of the urethral conditions of the upper urinary tract seen in adults as a continuation of pathologic obstructions encountered in children.

DR. ABRAHAM MATTES, New Orleans: I think some of us are prone to use a method that is common to us, and probably will continue to use the method with which we get the best results. I believe firmly that if we use a proper sized catheter and are careful about not overdistending the pelvis, using a nonirritating substance, we shall get good results with bilateral pyelograms. As to neosilvol, it is comparable to collargol in action and may affect the patient similarly if retained. I never use any more than 4 cc. of a 40 per cent solution of sodium iodide in the kidney pelvis, and I use much more than that intravenously without thinking about it. Sodium iodide is immediately diluted by the urine, and cannot do the harm it is supposed to do unless we block the pelvis of the kidney, or interfere with proper drainage. With regard to the fact that perhaps some of these examinations were not justified, it should be remembered that there were only 229 in 1,200 cystoscopies. This represents the consulting work in a large general hospital. The genito-urinary tract had to be examined. The examination was done as thoroughly and completely as possible, and if possible it was done at one sitting.

THE SYMPTOMATOLOGY OF INFECTION WITH ENDAMEBA HISTOLYTICA IN CARRIERS *

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In a contribution published in 1921, I [1] called attention to the frequency of the occurrence of symptoms of the infection in apparently healthy persons who were found to be carriers of *Endameba histolytica*, and since that time I have taken the opportunity, whenever possible, of checking the clinical history of all persons who have, to my personal knowledge, been determined to be carriers of this parasite. My observations along this line have proved the truth of the statements contained in the publication referred to, and have shown that a very large proportion of carriers of *Endameba histolytica* do present symptoms of the infection, and are thus not true carriers in the sense that they are free from any symptoms of infection. Experience has shown that more than 50 per cent of so-called carriers of this parasite present some symptoms apparently caused by its presence in the intestine, and it is probable that a much larger proportion than this will be found, on careful inquiry, to present some clinical evidence of the infection.

The prevalence of infections with *Endameba histolytica* in temperate regions, as the United States, was not fully appreciated until after the World War. During that war, numerous investigators, in all parts of the world, studied the incidence of infection with this parasite, especially in troops, and it was found that it was a common parasite in almost every locality in which it was carefully searched for, and that a considerable proportion of persons were carriers of the organism. The researches of Kofoid [2] and his co-workers, of Boeck and Stiles,[3] and of others, have shown, so far as the United States is concerned, that about 10 per cent of the population is infected with *Endameba histolytica;* and if the cultural method of examination of the feces is adopted in diagnosis, as recommended recently by St. John,[4] it is believed that this percentage will be considerably increased. While a greater incidence of infection may occur in certain localities in the United States, as along the southern border, I believe that it is conservative to estimate that at least 10 per cent of persons in the United States are infected with *Endameba histolytica,* and that the majority of these persons are carriers of the parasite, as I have previously stated.[5]

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* Read at the twenty-second annual meeting of the American Society of Tropical Medicine, May 28, 1926, Washington, D. C.

* From the Department of Laboratories and the Department of Preventive Medicine and Clinical Pathology, Army Medical School.

1. Craig, C. F.: Unrecognized Infections in Production of Carriers of Pathogenic Organisms, J. A. M. A. **77**: 827 (Sept. 10) 1921.

2. Kofoid, C. A.; Kornhauser, S. I., and Plate, J. T.: Intestinal Parasites in Overseas and Home Service Troops of U. S. Army, J. A. M. A. **72**: 1721 (July) 1919. Kofoid, C. A., and Swezy, O.: Am. J. Trop. Med. **1**: 41 (Jan.) 1921.

3. Boeck, W. C., and Stiles, C. W.: Bull. 133, Hyg. Lab., U. S. P. H. S., 1923, p. 12.

4. St. John, J. H.: Practical Value of Examination for Endameba Histolytica by Culture, J. A. M. A. **86**: 1272 (April 24) 1926.

5. Craig, C. F.: A Manual of the Parasitic Protozoa of Man, Philadelphia, 1926, p. 45.

If the carriers of this parasite did not suffer physically from the infection it would be of little importance, except from the standpoint of prophylaxis; but I believe that at least 50 per cent of carriers, and probably more, suffer from symptoms due to the presence of the parasite and, therefore, are injured physically. It is most unfortunate that the term "amebic dysentery" should have become, in the minds of most medical men, a synonym of "amebiasis" or amebic infection; for while dysenteric symptoms are characteristic of the most serious cases of infection with *Endameba histolytica*, the vast majority of such infections are not accompanied by dysenteric symptoms, but by much milder symptoms generally attributed to some other factor and not recognized as the result of infection with this parasite. The coloring of the picture of amebic infection by the symptoms and lesions found in amebic dysentery has hidden, to a great extent, the significance of the numerous other and less marked symptoms of infection with the parasite, and has led the physician astray in the diagnosis of amoebiasis. As I [1] stated in my original contribution, where one case of amebic dysentery occurs, there occur many cases of amebic diarrhea, characterized by short periods of mild diarrhea alternating with periods of slight constipation. Such patients, if they present themselves to a physician for treatment, are not suspected of suffering from infection with *Endameba histolytica* because the average physician in this country does not realize the widespread extent of the infection with this parasite in the United States, and because he does not realize that dysenteric symptoms in this infection are the exception and not the rule.

Because I believe that the majority of carriers of *Endameba histolytica* present symptoms of the infection and require treatment, and because the proper treatment of these carriers is of the utmost importance in the prophylaxis of the infection, I think that a brief summary of the symptoms presented by this class of patients, as observed personally, might be of service in calling attention to the condition and to the importance of a microscopic examination of the feces in persons presenting the symptoms mentioned.

In my experience, the symptoms presented by apparently healthy carriers of *Endameba histolytica* are largely confined to the digestive and nervous systems. The occurrence of many of the symptoms can be elicited only by close questioning of the patient, and by a careful survey of the clinical history extending back, in many instances, for months or even years. Most carriers of this parasite are discovered by accident, during a routine examination of the feces in research work, and most of them consider themselves as healthy and are not, at the time, consulting the physician for treatment. Therefore, it is obvious that most careful questioning is necessary in order to obtain statements regarding any mild symptoms that may have occurred but were not thought sufficiently important to report to a physician. However, most carriers will, if properly questioned, state that symptoms of their infection have occurred at times, but were not considered of much importance in absence of knowledge that infection with *Endameba histolytica* was present.

The symptoms most frequently noted are those connected with the digestive system, and perhaps the most common of these are constipation and diarrhea. Most carriers state that they are troubled more or less with constipation, relieved at times by mild attacks of diarrhea, rarely lasting more than a day or two, at most. Often, after a period of slight constipation, the patient suffers from a few severe colicky pains in the lower part of the abdomen, which are promptly followed by a copious diarrheal stool, and by complete relief from the pain and constipation for a longer or shorter period. These attacks of diarrhea are especially prone to occur late in the day, or in the night, and are generally preceded by a feeling of malaise with slight headache and distention of the abdomen. If the feces passed at the time of the diarrheal attack are examined, it will be found that much mucus is present, and there may be blood microscopically, although this is rare. Motile, as well as precystic and cystic, forms of *Endameba histolytica* are invariably present in the diarrheal stool.

As a general rule, only one or two diarrheal stools occur at the time of the attack, but a slight diarrhea may persist for a day or two, and, in rare instances, for a longer period. These attacks do not occur frequently, perhaps only one or two occurring during a period of several weeks or months, and the blame is usually placed on some indiscretion in diet.

Another very common symptom noted in carriers of *Endameba histolytica* is lack of appetite or actual anorexia. Many of these persons state that they have little appetite, that they eat because they feel that they should, but that they do not enjoy their food. They often feel a marked desire for food, but on eating feel nauseated, or find that the food does not taste good to them. Along with this lack of appetite, or distaste for food, goes a loss in weight, which is quite characteristic of infection with this parasite. Most carriers will be found to be below normal in weight, and it will be found, on inquiry, that the loss in weight is most marked at times when the appetite is poor and the food is distasteful. The loss in weight is much more pronounced in hot than in cold weather, and may be considerable during the hottest summer months, at which time the diarrheal attacks are more frequently observed.

Other symptoms connected with the digestive system which are often noted in carriers of *Endameba histolytica* are evanescent neuralgic pains in the lower portion of the abdomen, especially in the right iliac region; tenderness on deep pressure in the right iliac region and over the descending colon; a dull aching sensation in the lower abdomen; flatulence and distention of the abdomen, and tenderness at times over the region of the liver, leading, in some instances, to an examination, and a tentative diagnosis of hepatitis or choecystitis.

A mild degree of anemia is usually present in carriers of this parasite and is evidenced by the slight pallor so often noted in this class of persons. If a blood count is made, it will be found that the erythrocyte count varies between 4,000,000 and 4,500,000 erythrocytes per cubic millimeter, while the hemoglobin averages from 10 to 15 points below normal. In my experience, a slight degree of anemia is present even in those carriers who state that they have no symptoms of the infection.

Many carriers of *Endameba histolytica* present symptoms referable to the nervous system, all of them of the neurasthenic type. Of these, the most common are slight headache, occurring at irregular intervals and without any demonstrable cause; neuralgic pains in the head, arms and legs; dulness and lack of interest in the daily work; lack of initiative and ambition; poor memory; nervous irritability; sleepiness and disturbed sleep; irritable pulse, which increases in rapidity after the slightest exertion or nervous excitement, and excessive perspiration of the palms of the hands and

soles of the feet. These symptoms, essentially neurasthenic in character, indicate the absorption of toxic material from the intestine, and are frequently noted in these persons.

A subnormal temperature is frequently encountered in carriers of this parasite, the subnormality being most marked in the early morning hours. Some carriers show a slight rise above normal in temperature late in the day, but in my experience this is not as commonly observed as the subnormal temperature, and many carriers do not show any abnormality in temperature at the time of examination.

ETIOLOGY OF THE SYMPTOMS

It may be well to discuss briefly the etiology of the symptoms that have been mentioned as frequently observed in carriers. To secure a just conception of the etiology of these symptoms it must be remembered that *Endameba histolytica* is usually a true tissue parasite, living on the tissue of its host, man. Therefore it follows that, strictly speaking, there is no such thing as a perfectly healthy carrier of this parasite, for if amebas are present and multiplying, lesions have been produced in the mucous membrane of the large intestine, the natural habitat of this species. Fortunately, most persons are very resistant to the infection, and many hundreds and even thousands of the parasites may be present in such persons without producing notable symptoms of the infection. However, it should be remembered that many of these amebas have penetrated into the mucous membrane of the intestine, producing lesions of the epithelial coat, and that these lesions, although microscopic in size and quickly healing, have undoubtedly allowed the entrance of toxic material and bacteria from the lumen of the intestine, with consequent liability of absorption through the lymphatics and blood stream. In resistant persons, healing of these minute lesions probably occurs rapidly and symptoms do not develop; but where resistance is lowered, healing is delayed and symptoms due to the absorption of toxins and bacteria occur. If one accepts 3 microns as the optimum length of *Bacillus coli* and 25 microns as the average diameter of the trophozoites of *Endameba histolytica*, it is obvious that the lesion made by the latter organism in penetrating the mucous membrane of the intestine will be large enough to allow of the entrance of multitudes of colon bacilli, as well as streptococci, staphylococci and other inhabitants of the intestine, while considerable amounts of toxic material could be absorbed from even so minute a lesion. If such an area of penetration is multiplied by many thousands, the occurrence of symptoms of infection in so-called carriers is not to be wondered at, but rather is it remarkable that any person harboring *Endameba histolytica* escapes symptoms of the infection.

It has been demonstrated, by actual count, that hundreds of thousands of cysts of this parasite are passed daily in the stools of carriers. While the number of cysts passed in the stools is not an index of the number of trophozoites that have localized in the mucous membrane of the intestine, it is an index of the number of trophozoites present, and it is fair to presume that many thousands of them have actually penetrated into and beneath the mucous membrane and have caused lesions through which toxins and bacteria may be absorbed.

As a matter of fact, it is undoubtedly true that many carriers of *Endameba histolytica* have macroscopic ulcers in the large intestine, for definite ulceration due to this parasite may exist in the intestine without the production of dysenteric symptoms, as first shown by Musgrave[6] in 1910. In his contribution he summarized the results observed at necropsy in fifty persons dying from other conditions than amebic dysentery, and in whom amebic infection was not accompanied by diarrhea or other suspicious symptoms of dysentery. Regarding the lesions present in the intestine in these cases he says:

> Characteristic amebic lesions were present at autopsy in all of the fifty cases. These lesions varied in type from those just beginning to those showing ulcers having the characteristic extensive destruction of the mucous membrane of the bowel so often seen in cases of amebiasis of long standing. . . . The duration of the infection, judging from the autopsy findings, varied, but in most instances the lesions indicated processes of long standing.

I can confirm these results of Musgrave, for I have observed marked amebic ulceration in the intestine at necropsy in patients who did not present symptoms of dysentery during life and were not suspected of infection with *Endameba histolytica*. Many of the symptoms described in this paper were noted by Musgrave in the cases he reported.

In view of these results, it is obviously impossible to state, with any accuracy, that the intestine of apparently healthy carriers of this parasite is not definitely ulcerated, and it is my belief that many carriers of *Endameba histolytica* have definite macroscopic lesions in the intestine due to the presence of the parasite.

Whether *Endameba histolytica* secretes a toxin or toxins, in addition to the cytolysin which assists it in penetrating the mucous membrane of the intestine, is still undecided. Some authorities believe that part of the symptoms of amebic infection are due to such a toxin, or toxins, but I am doubtful whether any such toxin is produced by the organism. As a matter of fact, such a toxin, or toxins, is not necessary to explain the symptoms noted in carriers, for all these symptoms can be easily explained by the absorption of toxins and bacteria from the intestine through the lesions produced by the invasion of the mucous membrane by *Endameba histolytica*. In every carrier of this parasite there must be numerous foci of infection present in the mucous membrane from which toxic material is absorbed, and whether symptoms are produced or not depends on the resistance of the individual carrier. The symptoms most frequently observed are those characteristic of the absorption of toxic material, and it is undoubtedly correct to state that many carriers of this parasite are suffering from a toxemia due to its presence in the intestinal mucous membrane.

CONCLUSION

I desire to urge the importance of a routine microscopic examination of the feces in all patients presenting the symptoms noted in this contribution, and, if *Endameba histolytica* is found to be present, the energetic treatment of the infection. If such measures were generally adopted, the number of carriers would be considerably reduced, and all carriers would be greatly benefited by treatment. From a prophylactic standpoint, the detection and treatment of carriers is of great importance, for we know that most of the infections with this parasite are the result of contact with carriers; and while we cannot hope, at present, to cure all infections in this class of persons, it is certain that a considerable proportion of carriers can be cured, and all will be improved in health by proper treatment.

6. Musgrave, W. E.: Philippine J. Sc., B, 5: 229, 1910.

CONSTITUTIONAL FACTORS AS AN AID TO THE EARLY EVALUATION OF BEHAVIOR DISORDERS

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It is often thought that interest in the constitutional aspects of pathology, that is to say in those factors which are "definitely more hereditary than environmental," goes hand in hand with a neglect of therapeutic and prophylactic endeavor. This belief, which amounts almost to a prejudice against constitutional studies, is not borne out by the historical evidence of the development of medicine. In the beginning of the nineteenth century, for example, when constitutional studies were still in the center of medical interest, the attitude toward therapy was an optimistic one; at the end of the nineteenth century, with its startling discoveries of exogenic factors of disease, there developed gradually a more pessimistic and nihilistic attitude toward therapy. In the field of mental diseases one can point to Morel, the first psychiatrist to recognize the importance of heredity as a guiding factor in the multiformity of psychopathologic reactions, as also one of the first authors to contemplate a systematic treatise on mental hygiene. There are other historical examples which can confirm the view that interest in constitutional factors of disease, far from being antagonistic, is in reality indispensable as a basis for rational therapy and prophylaxis.

In psychiatry there has been in recent years a renewal of the investigation of the human constitution and especially of the relation of mental diseases to body types and psychologic types. As a critical survey of the subject shows,[1] the study of these relations is as yet in a beginning stage. There are only a few well established constitutional traits with significant correlations, and only in especially typical cases can certain of these facts be used in psychiatric considerations.

The pyknic body type (Kretschmer; hypersthenic, Mills), with thick-set and large trunk and a tendency to obesity, has a certain biologic affinity to manic-depressive psychoses; the asthenic body type (Mills and Kretschmer), characterized by a small trunk volume and relatively considerable length of limbs, occurs more often in schizophrenia, as do also dysplastic types. The characteristic proportions of these types can be accurately expressed with the aid of an anthropometric index expressing the relation between trunk volume and limb length (first index in cases 1 and 2), the pyknic types showing low values, the asthenic types high values.

Psychologically, the personality of individuals later suffering from manic-depressive psychosis often belongs to the group of those with a free and easy association and emotional contact with other individuals of their environment (syntropic), whereas the personalities of those who later suffer from schizophrenia are often in the group of those who are "shut-in" and emotionally separated (idiotropic).

In order to show that these facts, which are still under investigation and not yet on a definite biometric basis, can nevertheless in certain typical cases be applied to the evaluation of the early stages of disorders of behavior, the stories of the following two patients will be described. They are two young men of the same age whose life circumstances were strikingly similar, both being uprooted in childhood under conditions that might well be taken as psychogenic factors of their later pathologic development. Psychologically and anthropologically, however, they show certain constitutional traits that are clearly and to a marked degree characteristic of two opposing types.

REPORT OF CASES

CASE 1.—A man, aged 23, was admitted to the clinic in 1926, with the complaint of depression and some digestive symptoms (eructation, heartburn and constipation). The physical examination gave essentially negative results except for moderate underweight and slightly elevated blood pressure (138 systolic and 74 diastolic). In an account of the onset and development of his complaints he said that in the spring of 1924 he had started on a new job as salesman and felt exceptionally happy, enthusiastic and "full of push" for four months. As he did not succeed as rapidly as he had thought he would, his enthusiasm began to wane, and on being transferred to new territory he felt very "lonely." Since the late autumn of 1924 he had been feeling "blue" and depressed. At that time, feeling a craving for friendship, he spent much time with a girl who was frail and herself unhappy. He talked to her a great deal about the details of his work, which at that time was selling brushes. After a few months she gave up the friendship, which made him more depressed, and he discussed this affair with all his friends. In the spring of 1925, digestive symptoms began. He kept on working, although uninterested in his job, depressed and "lonesome." In October, he gave up his position and worked on a farm, gradually less and less able to concentrate and more preoccupied. He often thought of "ending it all," but feels that he was kept from suicide by his religious teaching (Catholic). The mental examination gave results in keeping with his story. He looked sad, but was always inclined to cover up his depression by a superficial gaiety when in contact with other patients. "My head is very heavy. Of course I laugh and smile and don't let the others see how I feel." There was some difficulty of concentration apparent. He was inclined to self-accusation and wished he could live his life all over again. He had moderate insomnia and anorexia. He had suicidal intentions.

The outstanding event of the patient's life, both in his own estimation and for the observer, occurred after the death of his father and mother, who had lived in comfortable circumstances. At this time, at the age of 10 years, his environment and his whole life changed, and where he had been spoiled before, he was now living under the care of penurious relatives.

In his mental development and in his habitual life-reactions he showed typical traits. At the age of 8½ years he grieved excessively over the death of his father. When living with his relatives, he felt keenly the material differences between himself and his playmates. At the age of 16 he began to take small objects of jewelry from his aunt and pawned or sold them. Working in an electrical shop after he had left school, he once took a small sum from the coat of a fellow-worker. He was discharged from his position because he overstayed a leave. He also borrowed money to buy a suit at that time, whereupon his uncle ordered him out of the house. He wandered about, got into "bad company," and was very unhappy, but he always had friends and got along with people. He was several times helped by casual friends. A friend of his father got him a poorly paid position as janitor which he kept for six months, but he was discharged after an altercation with the manager. His next position was as guide on a sight-seeing bus, explaining the sights in four languages. He had been very proficient in languages while at school. He enjoyed this kind of work very much and felt very happy. All his life he changed from enthusiastic to depressed moods. "Now I'm up in the air, and the next moment I'm away down." His sex-life was free and somewhat indiscriminate. In his craving for friendship he had a tendency to "fall in love with every one."

1. Wertheimer and Hesketh: The Significance of the Physical Constitution in Mental Disease, Baltimore, Williams & Wilkins Company, 1926.

His physical habitus was that of a very well nourished, typically thick-set and stocky young man with ruddy skin and fresh color, overweight before the onset of psychosis; his best weight was 165 pounds (75 Kg.), his stature, 163.5 cm.; $\frac{\text{Leg length} \times 10^3}{\text{Transv Chest Diam} \times \text{Sag Chest Diam} \times \text{Trunk Height}} \times 100$ Index = 246; trunk height/leg length index = 70.0; biiliac diameter/biacromial diameter index = 72.5; subcostal angle, 66 degrees; face shape, "shield" form; regular, smooth profile; round head; neck short and full, with sloping line from tip of chin to suprasternal notch; trunk, barrel-shaped; very abundant trunk hair of usual distribution.

CASE 2.—The second patient was admitted to the clinic in 1926, at the same age (23 years) as the first patient, in a state of euphoric preoccupation with an extreme dissociation of speech and thought, giving irrelevant and apparently quite disconnected replies. The physical examination was essentially negative, except for a well healed abdominal scar dating from an operation for "adhesions." In an account of the onset and development of his condition, his relatives said that ever since he left school at the age of 14 years he had worked at odd laboring jobs, changing positions very frequently and wandering from place to place. In 1921 he suddenly returned home, sat around staring, and heard imaginary voices. He was taken to a hospital and recovered sufficiently after a few weeks to be at home again. He ran away from home and spent a year in the army. In 1923 he returned again, hallucinated, resistive, and with delusions of persecution. Since then he had been continually in hospitals, showing progressive deterioration. Mental examination showed a deterioration of habits and activity, somewhat euphoric indifference, odd behavior, disconnected peculiar symbolic speech with many neologisms, and complete lack of insight. He expressed at times a wealth of grandiose ideas with peculiar regressive content: "I excreted thirty or forty spiritual vapors; they are all living, male and female."

The outstanding event of the patient's life was the divorce of his parents when he was about 12 years old, leaving him and his mother in abject poverty after they had been living a life of luxury. He felt his poverty keenly and developed a deep resentment against his father.

Since a very early age his mental development showed interesting and characteristic traits. As a child, he was rather precociously intelligent. At times he made grimaces. He was docile and kind. At the age of 9 years he had a definite difficulty of concentration (noticed by his father). He "took the poverty of the family much to heart," made a good attempt to work, and was ambitious to get money to help his family. Evidently without the advice or help of any friends, he drifted into menial jobs, elaborating later around his failures the delusion that they were due to his father's influence. Emotionally he was not bound much to any friends or to his family, except to his mother. Nothing is known about his sex-life, and little about his sensations and experiences. During the psychosis he had the false belief that a girl was on the floor above persecuting him, and he said that he had done something wrong to her.

His physical habitus was that of a pale undernourished lanky young man with irregular facial features; he was underweight, his best weight being 65 Kg.; his stature was 172.9 cm.; $\frac{\text{Leg length} \times 10^3}{\text{Trans Chest Diam} \times \text{Sag Chest Diam} \times \text{Trunk height}} \times 100$ Index = 284; trunk height/leg length index = 65.4; subcostal angle, narrow; face, shape of short egg form; profile irregular with prominent nose and chin; nasion depressed; facial configuration markedly asymmetrical; flat occiput; "tall" head; neck long and thin, with prominent larynx; trunk profile, narrow; little trunk hair, almost absent on chest; very little beard growth; no axillary hair; right testis very large and hard.

COMMENT

The first patient, then, presents a depressive psychosis, of manic-depressive type. He is of pyknic habitus. His personality, which is here given only in sketchy outline, shows a tendency to habitual affective contact with the social environment (syntropic tendencies). The second case presents a terminal stage of a schizophrenic psychosis. He is of asthenic-athletic habitus with dysplastic features. His life circumstances were very similar to those of the first patient, but his attitude toward the social environment shows a clear tendency to "satisfaction in isolation" (idiotropic).

If an attempt is made here to demonstrate that constitutional traits can at various stages of the development of the individual be used for prognostic purposes, it is necessary to point to at least some of the difficulties inherent in this method of approach. Idiotropic and syntropic tendencies are not sufficient to denote definite personality types. They indicate certain directive tendencies of the personality in one of its aspects. A really dynamic understanding of the mental development has to deal with much more complex and intricate data; but this complexity would make the singling out of constitutional data very difficult. A genetic explanation of mental disease on the basis of the personality in terms of constitutional types is therefore not yet possible. In that era of medicine when all pathologic facts were related to the dogmatic classification of "temperaments," this problem of predisposition played a great part. Although the doctrine of "temperaments" is past, certain modes of thinking of the old physicians have been unduly obscured and forgotten. In discussing the "melancholic temperament," for example, Hallé at the beginning of the nineteenth century remarked that it had to be thought of less as a "mode of health" than as a "true disposition to disease": It is near to hypochondriasis and leads to it." Much earlier the Scotch physician Pitcairn, the teacher of Boerhaave, spoke of temperaments as "natural diseases." The modern tendency to express personality types in terms of mental diseases which these personalities may develop—for instance, schizoid (Kretschmer and Bleuler) and cycloid (Kretschmer)—is not so very far removed from this concept of "natural diseases." While the formulation of character types on the basis of similarity and hereditary connection with mental diseases has undoubtedly been a great advance, the terminology "schizoid" and "cycloid character" has been somewhat misleading, being used for a "mode of health" but expressing a "morbid disposition to disease." For this reason the more neutral terms idiotropic and syntropic seem preferable.[1] The practical difficulties in the diagnosis of constitutional syntropic and idiotropic tendencies, the latter instructively discussed by Strecker and Willey,[2] can only be mentioned.

The important point stands out that constitutional studies have taught us that the concurrence of certain anthropologic and psychologic characteristics can be of psychiatric significance. In clear cases, such as the two described above, this concurrence of constitutional characteristics may be an indication of the form a behavior disorder in these individuals is liable to take. Two individuals suffering in preadolescence a similar psychic shock, both respond to it with a certain amount of maladaptation (stealing, drifting into menial jobs). It is evident that the danger zone of constitutionally different types lies in different directions, or better, on different levels. This is not to say that at our present stage of knowledge we should think in all sorts of behavior disorders specifically of preventing definite diseases. Nevertheless, there are for certain individuals definite *danger gradients* of different character (for example, the progressive steps of habit-disorganization in schizophrenia), the recognition of which helps us to

2. Strecker, E. A., and Willey, G. F.: Am. J. Psychiat. **3**: 593 (April) 1924.

find those points which deserve the emphasis of our attention and medical activity. In the first patient, the "comparison ideas" (himself versus his playmates), the searching for company at any price, the mood swings, are such points. Coercive measures could have been taken with him with very much less danger than in the case of the second patient of provoking a prolonged inimical seclusion from the environment. In the second patient, just this tendency to isolation would have been the main point deserving the most serious attention at the different stages of his more or less badly adapted behavior. The dangers in the first patient were acute and intensive lapses of adjustment; in the second patient, on the other hand, they consisted of slight but prolonged and extensive failures of adjustment.

The actual sphere of the application of these constitutional researches is as yet extremely narrow. However, the idea of constitutional types, if based on exact biometric foundation, cannot fail to be useful for general pathology. Pathologic problems are approached from the experimental point of view in a search for general universally valid causal or conditional relations. In actual practice, on the other hand, in general medicine as well as in psychiatry, the physician faces an individual and to some extent unique situation. A gulf separates these two modes of approach for the average physician. It is possible that one way to come from the realm of general and experimental facts to the concrete individual suffering patient may lead across the bridge of constitutional types.

In order to show what are some of the constitutional signs which seem to be of importance in psychiatry at our present stage of knowledge, and to indicate one field of their significance, these two cases have been presented.

ANTIRACHITIC PROPERTIES DEVELOPED IN HUMAN MILK BY IRRADIATING THE MOTHER *

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It has been firmly established that exposure to ultraviolet radiations, whether through the rays of the sun or artificial sources, regularly affords protection from rickets to animals and to human beings. The question arises whether similar protection can be transmitted through the milk by the mother to the young. It is an aspect that has both theoretical and practical significance. The subject of ultraviolet ray therapy is so recent that little investigative work has been carried out on ancillary aspects, and none whatever in regard to the reaction of the nursing woman to irradiation. Luce,[1] who conducted a series of similar experiments with cow's milk, concluded that "the antirachitic value depends on the diet of the cow and possibly also on the degree of illumination to which she is exposed." The potency developed by the milk was not great. More recently Steenbock, Hart and their associates [2] tested the milk of two goats which had been irradiated with the mercury vapor lamp and reported a definite increase in antirachitic potency.

It is evident that the question of a transference of antirachitic properties to the milk is of importance in relation both to the etiology and to the prophylaxis of infantile rickets, for although this disorder occurs less frequently among infants that are nursed than among those fed with cow's milk, nevertheless in our experience fully from one third to one half of breast-fed infants develop rickets in this climate. It is highly desirable, therefore, to enhance the antirachitic properties of the milk of the mother. In order to elucidate this question, the milk of a woman was tested previous and subsequent to a period of artificial irradiation. The method of testing was the one that is established in titrating foods for their antirachitic content; namely, the feeding of the test substance in definite amount to young rats which are placed on a standard low phosphorus ration. Curative rather than prophylactic tests were employed in this instance, as it was inadvisable, for practical reasons, to have the feeding period extend to four weeks. After roentgenograms had shown that rachitic lesions were present, a ration of 25 cc. daily of human milk was given in addition to the rickets-productive dietary. The milk was fed in this amount for a period of nine days, when the animals were once more roentgenographed, their blood analyzed for its content of inorganic phosphorus, and the bones prepared for microscopic examination. It was found that milk given in this amount absolutely failed to induce healing of the epiphyses, as evidenced either by the roentgenologic or the microscopic picture. The inorganic phosphorus in the blood was exceedingly low, 1.98 mg. per hundred cubic centimeters, and quite significant of rickets.

The woman was then irradiated by means of the mercury vapor lamp. Irradiation was carried out every day, at the outset for four minutes, the length of time being gradually prolonged; the lamp was placed at a distance of 30 inches. It seemed that possibly a greater effect could be induced by placing the lamp farther away, so that after five treatments the distance was increased to 60 inches and the exposure prolonged to fifty-six minutes, conditions that rendered the intensity of irradiation approximately the same as at the outset. After irradiation had been carried out in this manner every other day for a period of one month, the milk was again collected and fed daily to a series of rats in 25 cc. per capita amounts. As in the preliminary experiment, the animals had previously been rendered rachitic by a ration low in phosphorus. A striking difference was evident between the results from feeding milk that had been obtained previous or subsequent to irradiation; whereas no healing came about from giving the milk in the preliminary period, the result was quite the reverse during the second period—in every instance marked calcification of the epiphyses was evident. In several of these animals the bones were found so altered as to present almost a normal appearance. The inorganic phosphorus content of the pooled blood of the animals was 5.61 mg. per hundred cubic centimeters, as compared to 1.98 mg. in the previous series of rats. It was evident that marked antirachitic properties had been developed in the milk as the result of the irradiation of the woman.

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* A preliminary report of this work will be found in the Proceedings of the Society of Experimental Biology and Medicine **23**: 636-638, 1926.

1. Luce, Ethel M.: The Influence of Diet and Sunlight upon the Growth-Promoting and Antirachitic Properties of the Milk Afforded by the Cow, Biochem. J. **18**: 716, 1924.

2. Steenbock, H.; Hart, E. B.; Hoppert, C. A., and Black, A.: J. Biol. Chem. **66**: 441 (Dec.) 1925.

This notable increase in the antirachitic activity of the milk was not due to an increase in its phosphorus content. Forbes gives the average phosphorus content of woman's milk as approximately 19 mg. per hundred cubic centimeters. We have found it to be 17.6 mg. in a sample of pooled woman's milk and 17.7 in the milk of a nursing woman in the hospital. Subsequent to irradiation, the milk of the woman that we tested contained 16.8 mg. per hundred cubic centimeters; in other words, it was below rather than above the average in its percentage of phosphorus. Having ascertained that the antirachitic properties that had been developed in the milk through irradiation of the mother could not be attributed to an increase in its phosphorus content, a test was carried out to learn whether it resulted from an increase in the antirachitic factor. As is well known, the specific factor of cod liver oil, yolk of egg and other antirachitic substances has been found to be contained entirely in the nonsaponifiable fraction.

Curative Test of Human Milk Previous and Subsequent to Irradiation of Woman

Rat No.	Rat Weight, Gm.	Rickets Previous to Test	Diet	Treatment of Woman	Rickets Subsequent to Test: Roentgenographic	Rickets Subsequent to Test: Microscopic	Blood Phosphorus (Inorganic)
10376	50-74	Slight	25 cc. human milk + low phosphorus ration	None	Moderate	Moderate	1.98 mg.
10379	52-76	Slight			Marked	Marked	
10382	50-70	Moderate			Marked	Marked	
10383	52-74	Moderate			Marked	Marked	
10429	50-60	Slight	25 cc. human milk + low phosphorus ration	Irradiated	Healed	No	5.61 mg.
10430	50-60	Slight			Healed	No	
10480	60-70	Slight			Healed	No	
10479	50-60	Moderate			Healed	No	
10377	52-54	Slight	Low phosphorus ration	.....	Moderate	Moderate	3.36 mg.
10378	50-64	Slight			Moderate	Moderate	
10381	52-60	Slight			Slight	Slight	
10384	50-60	Slight			Slight	Slight	

This fraction was therefore separated from the milk of the woman who had been irradiated, and compared with a similar fraction of milk from a nonirradiated woman. The milk was first dried, then extracted with ether, saponified and resaponified with alcoholic potash, again extracted with ether and the fraction finally suspended in linseed oil. Comparative feeding tests of the nonsaponifiable fraction of milk from these two sources showed that the one obtained from the milk of the irradiated woman possessed antirachitic properties, whereas the other fraction was inert. In other words, ultraviolet irradiation not only confers direct protection from rickets but enables the nursing mother to transmit the protective factor to her offspring.

There is quite another aspect to this investigation; namely, the effect of these rays on the nutrition and health of the nursing mother. It has frequently been shown in studies of the mineral metabolism of lactating animals that there is a considerable loss of the salts, especially of calcium, in animals that are producing large quantities of milk. Meigs [3] reported that during a large part of the lactating period the heavy milking cow usually suffers a loss of certain mineral elements from her body. Negative balances of calcium have been found to continue even though the ration contains an abundance of this element. The yield of milk may be good in spite of a marked negative calcium balance. Although such experiments on lactating animals suggest an analogy to the nursing mother, it should be borne in mind that the physiologic conditions of lactation are quite different. The cow has about 25 liters of blood in its body, and secretes daily half this amount of milk or even more, whereas a woman who has approximately 7 liters of blood gives her baby every day approximately one seventh of this quantity. The ratio of milk production to blood volume, and therefore the comparative drain of inorganic salts, is essentially different in the two species.

It has been found that ultraviolet irradiation brings about a marked alteration in the salt equilibrium of the lactating animal. Hart, Steenbock and Elvehjem [4] have published experiments indicating that the rays from a mercury vapor lamp convert negative balances of calcium and phosphorus in the lactating goat to positive balances. Orr and his collaborators [5] found that irradiation by a carbon arc lamp definitely reduced the loss of calcium of lactating goats. Henderson and McGee [6] demonstrated by means of balance experiments that irradiation from this source brings about a marked increase in absorption of calcium and a moderate increase in absorption of phosphorus. Similar experiments in which sunlight was employed, instead of artificial light, did not lead to such definite results; Hart, Steenbock and their colleagues,[7] who conducted an experiment of this kind in June with direct sunlight, found that negative lime balances still persisted, and that "apparently summer sunlight in comparison with the radiations of a quartz mercury vapor lamp is feeble in its antirachitic properties when considered in relation to liberally milking animals." Doubtless such is the case; we estimate the intensity of the ultraviolet from the mercury vapor lamp to be at least thirty times as great as that of the solar rays. However, there is no doubt that sunlight is a most remarkable and valuable curative agent for rickets, so that once more a quantitative distinction may have to be drawn between effects on animal and man.[8] Although sunlight may fail, investigators agree that the powerful ultraviolet radiations of the mercury vapor lamp are capable of balancing the mineral metabolism which has been adversely affected by the demands of lactation.

It would seem that our experiments have a definite application to both pediatrics and obstetrics, and perhaps to dentistry. They suggest the advisability of irradiating the mother during the lactation period as a means of protecting her child from rickets and of maintaining her own nutrition, especially the integrity

3. Meigs, E. B.: Physiol. Rev. **2**: 204 (April) 1922.

4. Hart, E. B.; Steenbock, H., and Elvehjem, C. A.: J. Biol. Chem. **62**: 117 (Nov.) 1924.

5. Orr, J. B.; Magee, H. E., and Henderson, J. M.: Biochem. J. **19**, 1925.

6. Henderson, J. M., and McGee, H. E.: Biochem. J. **20**: 363, 1926.

7. Hart, E. B.; Steenbock, H.; Elvehjen, C. A., and Scott, H.: J. Biol. Chem. **67**: 371 (Feb.) 1926.

8. In referring to sunlight we have in mind the solar rays of the temperate zones. In the tropics, conditions are quite different, as was illustrated recently by experiments carried out in this laboratory. Some time ago we found that vegetables are not rendered antirachitic in June by the sunlight in this latitude. On the other hand, the fact that some coconut oil has been found to possess antirachitic value—the only vegetable oil that exerts such activity—raised the question whether this property might have been brought about by the intensity of the tropical sunlight. In order to test this hypothesis, we obtained from Trinidad coconut oil that had been prepared from kiln-dried copra, as well as similar oil prepared from copra that had been dried in the sun. These oils were fed in equal amounts to two series of animals. The former variety was found to be inert, whereas the latter showed antirachitic potency. Evidently the rays of the tropical sun had activated the phytosterol of the copra. The only other vegetable oil that has been shown to have antirachitic properties is clove oil. According to the U. S. Dispensatory, cloves are dried in the tropics by being exposed to the sunlight.

of tissues which form the storehouses of calcium and phosphorus—the bones and the teeth. How effective this method will prove must be ascertained by clinical experience. It may be added that less intense irradiation probably would have sufficed to bring about protective qualities in the mother's milk. It would be interesting to ascertain whether irradiation during the last weeks of pregnancy will not likewise increase the antirachitic factor in the milk. The nursing woman might well be given the benefit of a therapeutic measure of this kind, in the home, in the lying-in hospital and in the baby welfare clinic.

SUMMARY

Ultraviolet irradiation of a nursing woman brought about a marked increase in the antirachitic potency of her milk. Fractionization of the milk showed that this effect was due to an augmentation in the antirachitic (nonsaponifiable) factor. It is suggested that such irradiation be employed in order to protect infants from rickets and nursing women from excessive drain of calcium and phosphorus.

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Clinical Notes, Suggestions and New Instruments

SCURVY COMPLICATING VOMITING OF PREGNANCY *

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Adult scurvy is such an uncommon disease under modern living conditions that each case is of interest in that it reinforces the evidence favoring a vitamin deficiency as the ultimate cause. Its association with vomiting of pregnancy must be exceedingly rare, since I have been unable, in a fairly comprehensive search of the literature, to find a single recorded case. Because of this apparent rarity, I decided to present the following case.

REPORT OF CASE

A white woman, aged 27, entered the hospital, Dec. 12, 1925, complaining of vomiting, general debility and epistaxis. The family history was unimportant, and the past history was essentially negative except for scarlet fever at the age of 7, and two subsequent attacks of inflammatory rheumatism, which were not followed by recognized cardiac disease. The tonsils had been removed, but there had been no other operations.

The patient was married in June, 1924. There had been no previous pregnancies. Menstruation had always been irregular, with occasional amenorrhea persisting for two or three months, and recently the periods had lasted for only half a day. The date of the last menstrual period had been September 5.

October 11, the patient felt weak and was forced to lie down during the afternoon. That evening she took a walk, during which she noticed marked palpitation and felt very nervous. The next morning she consulted the neighborhood physician and was given some small tablets (contents unknown) to take every two hours. After a few had been taken according to directions, there was a severe burning sensation in the region of the stomach, and shortly thereafter vomiting began. This gradually became worse until finally practically everything taken was rejected. About this time she came to live with her mother in Detroit, and a local "nerve specialist" was called in to treat her. A high carbohydrate diet was advocated and a strict dietary regimen prescribed. Roentgen-ray studies of the gastro-intestinal tract were carried out but, according to the statements of the family, showed no abnormality.

Although the patient was now two or three weeks over the expected time for her period, little attention was paid to the fact, since periods of amenorrhea had been frequent. However, the attending physician called in an obstetrician, who was at that time unable to say whether or not the patient was pregnant.

Before the present illness, the patient had eaten a well balanced diet which included plenty of fresh fruits and vegetables; but during the last two months practically everything eaten had been vomited, although frequent attempts had been made to give solid food. She had had no fresh fruits or vegetables. Small quantities of whisky and an occasional glass of beer had been retained. During this interval there had been a loss of approximately 40 pounds (18 Kg.).

A few weeks before admission the patient had noticed that the gums bled easily whenever the teeth were brushed, although they had never before been sensitive. For the past week, there had been spontaneous bleeding from the gums and frequent attacks of epistaxis. It had also been noted that the urine was very scant and dark, and that the vomitus was sometimes black. The general weakness had become accentuated gradually, with almost continuous retching and vomiting, until she was finally persuaded to enter the hospital.

The patient was a small woman with no particular signs of emaciation, although it was very evident that considerable weight had been lost. Weakness and exhaustion were quite marked. The mucous membranes were pale. There was no jaundice, although the conjunctivae showed some areas of yellowish fat. There were some diffuse areas of irritation over the arms and legs, but no petechiae were found. The eyes showed slight bilateral exophthalmos. Both nares were filled with old blood clots. The mouth was covered with sordes, and the lips were cracked and bleeding. The throat was injected, but no membrane could be made out. The thyroid was palpable but not greatly enlarged. The heart was not enlarged, its sounds were clear, and there were no murmurs. The pulse rate was 130 a minute, but of good quality. Percussion showed the lungs resonant throughout and the breath sounds were normal, although a few coarse râles were heard over the lower back. The abdomen was soft and tympanitic throughout, with some slight tenderness in the left lower quadrant. There was slight costovertebral tenderness, more marked on the right. The reflexes were normal. Over the inner aspect of the lower third of the left tibia, there was an irregular swelling about 4 by 2 cm., possibly a subperiosteal hemorrhage. The temperature was normal.

Vaginal examination made evident a three to four months' pregnancy with the uterus palpable above the symphysis. The breasts were nodular, and the areolae were considerably pigmented.

It was assumed that the patient was suffering from a rather severe vomiting of pregnancy, and treatment was instituted to overcome this condition. Suggestion was followed by seemingly good results. A 5 per cent dextrose solution was given continuously by rectal drip, and an ice collar was placed on the throat to relieve the soreness and dryness. Sodium bromide and chloral hydrate were ordered to be given if necessary. The patient slept quite well during the early evening after admission, and again during the night after the sedatives had been administered. Small amounts of fluid were vomited only twice, the rectal glucose was retained and absorbed, and satisfactory amounts of urine were voided.

The following day there was some improvement, and by evening the patient was quite comfortable. The fluid intake for the twenty-four hours had been 3,150 cc. and the urine output 1,150 cc. At noon and again in the evening, a semisoft diet was given and retained.

The urine specimen obtained by catheter on admission showed a specific gravity of 1.025; an acid reaction; a slight trace of albumin; no sugar; the presence of bile, and a sediment containing many red blood cells and urate crystals; no casts were seen. Blood examination showed: hemoglobin, 72 per cent (Dare); red blood cells, 3,500,000 per cubic millimeter; white blood cells, 8,400; the differential count was normal. Chemical studies of the blood showed: nonprotein nitrogen, 25.4 mg. per hundred cubic centimeters; urea nitrogen, 10.7 mg.; uric acid, 3.8 mg.

At 11 o'clock on the second morning after admission, there was a profuse epistaxis which was controlled only by packing with epinephrine gauze. Early the same afternoon, a small

* From the obstetric department of the Henry Ford Hospital.

quantity of vomitus was ejected, and at 4:30 p. m. the nose bled again and required repacking. This was followed by another attack of vomiting during which 25 cc. of dark thick changed blood was expelled, apparently what had been swallowed during the epistaxis. A specimen of stool obtained at this time showed bright blood. The urine was dark red and contained large amounts of blood.

The bleeding time (blotting paper method) was six minutes (normal, two minutes); the coagulation time by the capillary tube method was seventeen minutes (normal, five minutes), and the van den Bergh test for bilirubin showed 2.28 mg. per hundred cubic centimeters (normal, from 0.1 to 0.25 mg.).

Because of the pronounced bleeding from practically all the mucous surfaces, it was decided to transfuse, and consequently at 9 p. m., December 14, 500 cc. of matched blood from a professional donor was given by the citrate method with the Hartman apparatus. At the end of this operation the pulse rate was 120 a minute and of good quality. An hour later, there was a severe chill lasting ten minutes, during which a severe headache developed. Five-tenths cubic centimeter of epinephrine was given hypodermically. Within the next hour the pulse rate had increased to about 180 a minute, and the respirations were labored. The headache was still severe. Another 0.5 cc. of epinephrine was administered, followed by one-fourth grain (16 mg.) of morphine. Within a short time the patient was quite comfortable.

December 16, less than twenty-four hours after the transfusion, all bleeding had ceased. The urine and feces were negative to the guaiac test, there was no bleeding from the nose, and the van den Bergh test showed normal values. Moreover, there was no more vomiting. The patient felt and looked like a different person.

A tentative diagnosis of scurvy was made just before the transfusion, and from that time large quantities of lemon and orange juice were consumed by the patient. Within a few days a regular diet was being taken, and special consideration was given to those foods which contain a maximum of the antiscorbutic substance. A tachycardia (pulse rate around 120 a minute) persisted during the entire period of observation. Two basal metabolic determinations gave normal readings. Electrocardiographic tracings showed no abnormality. Even though the metabolic rate was not elevated, a course of iodine was administered in the form of compound solution of iodine (Lugol's solution).

The patient was seen at frequent intervals after her discharge from the hospital, December 31. The pregnancy progressed normally except for the persistent tachycardia, and delivery by low forceps occurred, June 26, 1926, fourteen days after the calculated date of confinement. Convalesence was uneventful.

COMMENT

In reviewing the case, it would seem that the provisional diagnosis of scurvy had been substantiated more by the effect of the treatment instituted than by any clinical or laboratory observations. Of the other hemorrhagic diseases, the leukemias are well excluded by the normal blood picture and the rapid recovery, while purpura hemorrhagica is eliminated by the effect of treatment; the bleeding stopped permanently after a single transfusion plus an antiscorbutic dietary regimen.

Moreover, the character of the diet for perhaps two months before the onset of the severe symptoms was such that scurvy might well develop. The carbohydrate diet so highly recommended for the treatment of the vomiting of pregnancy is very deficient in respect to the antiscorbutic substance.

The available literature dealing with the blood changes in adult scurvy is so confusing that it is quite impossible to decide what is the characteristic picture. It would indeed appear that the blood conditions vary according to the stage of the disease, as is indicated in the experimental work of Astardjian[1] and of Lesné, Vaglianos and Christou.[2] The work of Gerstenberger, Champion and Smith[3] on pregnant guinea-pigs would indicate that pregnancy may change the clinical manifestations of scurvy. These authors found especially that the periosteal changes are much less marked than in nonpregnant animals, and that in general the symptoms are less severe.

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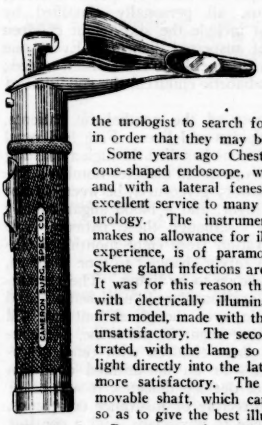
2. Lesné, E.; Vaglianos, M., and Christou: Le sang au cours du scorbut expérimental aigu chez le cobaye, Nourrisson **11**: 304-307 (Sept.) 1923.
3. Gerstenberger, H. J.; Champion, W. M., and Smith, D. N.: The Effect of Pregnancy on the Course of Scurvy in Guinea-Pigs, Am. J. Dis. Child. **28**: 173-182 (Aug.) 1924.

AN ELECTRIC SKENEOSCOPE*

H. W. E. WALTHER, M.D., NEW ORLEANS

The chronicity of gonococcal infections in the lower urogenital tract of the female is attributive largely to the infection finding lodgment in three structures; namely, the cervical glands, the glands of Bartholin and Skene's glands. The first two named are relatively easy of access, but Skene's glands, situated just within the urethra, are not readily exposed. Although the position of these glands is usually just above the lateral planes and about one-fourth inch from the meatus when the patient is examined in the dorsal recumbent position, the exact location is not at all constant. Like ureteral orifices, abnormal placements are frequently observed. Nevertheless, once the diagnosis of gonococcal urethritis in the female has been established, it becomes imperative for the urologist to search for these foci of infection in order that they may be efficiently dealt with.



Electric skeneoscope.

Some years ago Chester B. Moore devised a cone-shaped endoscope, with the distal end closed and with a lateral fenestra, which has rendered excellent service to many who practice gynecologic urology. The instrument of Moore, however, makes no allowance for illumination, which my experience, is of paramount importance many Skene gland infections are to be treated effectively. It was for this reason that I began experimenting with electrically illuminated skeneoscopes. The first model, made with the lamp in the tip, proved unsatisfactory. The second instrument, here illustrated, with the lamp so situated as to reflect the light directly into the lateral fenestra, has proved more satisfactory. The light bulb travels on a movable shaft, which can be elevated or lowered so as to give the best illumination.

By means of a diathermy needle electrode, introduced through the skeneoscope and into the gland orifice, these infected pockets can be thoroughly destroyed at one sitting. It is my practice to precede manipulations by the introduction, into the urethra, of a pledget of cotton on an applicator which has been soaked in a solution of equal parts of 1 per cent cocaine and sodium bicarbonate. This local anesthetic is allowed to remain ten minutes, after which time the examination or cauterization can be carried out without discomfort. The electric skeneoscope was made for me by the Cameron Surgical Specialty Company of Chicago.

1326 Whitney-Central Building.

* From the urologic department, Southern Baptist Hospital.

Value of Clinical Observation.—Clinical observation, when carried out by a great mind and in strict accordance with scientific method, has achieved most striking results, results which are entitled to our highest admiration when we consider the extreme difficulty of the problems and the scanty means at our command to solve them. Often, however, the results, great as they are and accurate as they are, lack the precision of detail that sometimes the experimental method is capable of supplying, and then the experimental method is responsible for the completion of that which has been truly founded by clinical observation.—Bradford, J. R.: *Lancet* **2**:841 (Oct. 23) 1926.

Special Article

END-RESULTS IN THE TREATMENT OF DIABETES MELLITUS IN CHILDREN *

ELLIOTT P. JOSLIN, M.D.
BOSTON

Fortunately, I cannot give the end-results in the treatment of my 395 diabetic children during the last twenty-eight years, because more than half (200) are alive today. Formerly the old diabetic patient was long lived and the young diabetic patient was short lived, but now in conformity with natural laws the reverse is taking place.

The data in this paper are based on children having true diabetes mellitus, all personally classified by myself. They do not include the sixty-eight children sent to me because of suspected diabetes. Every one of the 395 children with true diabetes has been traced; of the sixty-eight nondiabetic children, the condition of two is unknown.[1]

I can quickly dispose of the nondiabetic patients. One had diabetes insipidus and lives. Five had renal glycosuria, and of these one has died through a coasting accident. Patients with potential diabetes number fourteen. They have transitory glycosuria, between a trace and 3.1 per cent of sugar, and a blood sugar usually under 0.15 per cent. Although these patients have been under my observation from eight months to sixteen years, none have surely changed to true diabetes, and all fourteen are known to be living. The remainder, forty-eight cases, are considered "unclassified" and presumably not diabetic, even though all but two did on certain occasions have sugar in the urine. If continued observation of these children with renal glycosuria, potential diabetes or an unclassified condition shows that they do not develop diabetes, it will be of value to the medical directors of insurance companies, of diagnostic importance to physicians, and a comfort to many a mother.

The child diabetic is the pure diabetic, the diabetic in whom the diagnosis is not in doubt. He sets the standard for all other diabetic cases. Moreover, he is the desirable diabetic patient and deserves intensive study because of the light he throws on the problems of treatment, prognosis, regeneration of the pancreas, the so-called diabetic complications of the eyes and arteries, and ultimately the diabetic causes of death, if such there be. He is the best to study for end-results, the subject of this paper. It is also fortunate that children constitute only 7 or 8 per cent of all my diabetic patients, because the number is not overwhelming, and fortunate, too, that they are of all diabetic cases the most readily traced. Therefore I consider a child with an onset of diabetes under 1 year of age to be worthy of a medical endowment; and as for myself, I am convinced that I can contribute nothing better to a knowledge of diabetes than to endeavor to keep diabetic children alive.

Prior to the use of insulin, the exceptional diabetic child eluded the accidents of coma and malnutrition for more than a decade. This was nearly five times the average duration of his diabetic companions at that time, and proved our treatment of them to have been wrong. W. B. S. lived twelve years; he was married in the seventh year of his diabetes, and his wife gave birth to a healthy baby. Sarah W. lived 15.3 years, and went into coma. Then there was Alice P., who contracted diabetes at 8 years, lived twenty-nine years, and died in consequence of my ignorant treatment. She died in coma, but her death did more than any of my preceding cases to prolong the lives of the remainder. She taught me, first, never to institute fasting suddenly nor to prolong it for many days, and, second, never, never, *never*, in coma or out of coma, to treat a diabetic symptom, acidosis, with alkalis, but rather to treat the disease diabetes.

Table 1, of the diabetic children, shows the living and the dead and is divided into three periods: The Naunyn epoch, which included the wisdom of the centuries and the discoveries of his contemporaries, sifted and made precise by his clear thought; the epoch of Allen, Woodyatt, Shaffer, Petrén and Newburgh and Marsh, and next insulin, the epoch of Banting and Best, Macleod and Collip. This leaves for some one else to name the final epoch, the epoch, not of discovery or treatment, but of cure.

TABLE 1.—*Diabetic Children: Number and Percentage of All Cases* *

Period	Total Number of Cases First Seen in Period	Status, September, 1926			
		Dead		Living	
		Number	Per Cent	Number	Per Cent
Naunyn: August, 1898, to January, 1914	61	60	98.4	1	1.6
Allen: January, 1914 to August, 1922	169	117	69.2	52	30.8
Banting: August, 1922, to September, 1926	165	18	10.9	147	89.1
Totals and averages	395	195	49.4	200	50.6

* Classified according to period when first seen; compiled to September, 1926.

From the Naunyn period just one patient is alive of the sixty-one cases treated. His survival is not a mere accident, because he is the son of another diabetic patient. She also still lives after twenty-six years of diabetes and once said, "I would rather cut off my hand than break my diet." Thanks to insulin, she is reaping the rewards of her faithfulness. Her boy showed sugar repeatedly when 9 years old; he was put on her own diet at once by his mother and her physician, and ceased to show sugar after some months. He was then told to eat freely, but actually has lived on a diet, restricted moderately both in carbohydrate and in amount, and is well at 27 years; he has a son 7 months old. In 1908, a blood sugar test was not performed on this boy and I myself did not examine the urine for sugar; but with these facts I consider that it would be fully as unscientific, and more unfair to diabetes, to classify this patient as nondiabetic than as truly diabetic. Perhaps the same should be said of another patient classed as a potential diabetic patient of ten years' duration, who once showed 3.1 per cent of sugar.

From the Allen epoch with 169 cases, there are fifty-two patients, 30.8 per cent, still living. Allen had the courage to starve a child to make it live, and the other investigators mentioned with him explained acidosis and the place of fat in the diet. These fifty-two children are cheerful witnesses of their faithful labors,

* From the New England Deaconess Hospital.
* Read before the Medical Clinic Society of North America, Cleveland, Oct. 21, 1926.
1. When this paper was read there were two untraced patients: one of them has since been found to be alive and the other dead.

and we should acknowledge these labors to have been performed in a laboratory as well as in a ward. Furthermore, each of these children is alive today, because his or her own physician, in his daily care of the patient, has made use of modern diabetic tests in his own office laboratory. And yet some physicians blame the medical schools for teaching students to be dependent on a laboratory. The physicians who send me their diabetic relatives to treat think otherwise.

The Banting period, so far as my statistics are concerned, includes 165 cases and is of four years' duration. This is time enough at least with children to show comparative results, even if not end-results. I therefore note that of 165 children with onset since Aug. 7, 1922, there are 147, or 89.1 per cent, who are known to be alive.

Combining the present living patients in all periods, the total number of diabetic children with onset under 15 years who are still under observation is 200. Before entering into a discussion of their health and their future; let us seek evidence on end-results from the fatal cases, and first of all from those eight children on whom autopsies were performed.

FATAL CASES

Pathologic Evidence on Prognosis.—I have had autopsies on eight diabetic children. Shields Warren, whose publications on the pancreas in diabetes are numerous enough to indicate his familiarity with the subject, has had the kindness to study anew the protocols of these patients, review the conclusions of the pathologists who originally made the postmortems and finally to reexamine the specimens themselves, which in seven instances have been preserved. His conclusions will be published elsewhere, so that I will simply record that in each case he found sufficient pancreas, and specifically islands of Langerhans, to allow of a longer life. He expresses the hope that through treatment which permits the element of time to act, irreversible changes in the pancreas may be avoided. Thus pathology does not put up bars against the continued improvement of the diabetic patient.

TABLE 2.—*Diabetic Children: Fatal Cases Classified According to Period of Death* *

Period	Total Number of Patients Dying in Period	Age at Onset Years	Duration Years	Death in Coma, per Cent
Naunyn	51	9.7	2.1	95
Allen	110	8.8	2.4	88
Banting	34	9.8	2.6	94
Totals and averages	195	9.2	2.4	91

* Compiled to September, 1926.

TABLE 3.—*Diabetic Children: Fatal Cases and Their Duration*

Period When First Seen	Total Cases	Dead, September, 1926	Duration, Years
Naunyn	61	60	2.2
Allen	169	117	2.5
Banting	165	18	1.7
Totals and averages	395	195	2.4

Clinical Evidence on Prognosis.—The durations of life of my diabetic children who died are shown in tables 2 and 3. In table 2, the cases are listed according to the period at which the children died, and in table 3, according to the period in which they came for treatment. One case has been omitted from both tables in the averages, because the unusual duration of twenty-nine years for this patient would distort the figures.

During the Naunyn period, fifty-one children died at the end of 2.1 years and in 1914 I had only ten living diabetic children despite sixteen years of practice. All but one of these succumbed so soon that the final average duration of life of the sixty children was raised to only 2.2 years.

By the Allen period the duration of life in the fatal cases had scarcely changed, being 2.4 years, but there was this great difference, that more than a third of the patients remained alive and of these sixty-nine patients, there are only sixteen who have since died. By their deaths the duration has been raised to 2.5 years. Should the living be reckoned with the dead, the score of duration for the Allen period would double that of the Naunyn period. There is not any reason to suspect that the diabetes of the first period was more severe than that of the second. On the contrary, the causes of death in the two periods demonstrate their similarity for they were essentially the same. In the first group 95 per cent died of coma, and in the second group the percentage was 88.

TABLE 4.—*Percentage of Total Deaths from Diabetes in Massachusetts Found in the Age Group Under Fifteen*

Year	Age Under 15, per Cent
1900	7.0
1910	6.6
1920	5.0
1923	2.7
1924	2.6
1925	2.2

Coma deferred sums up the achievement of the Allen epoch over that of Naunyn's, if we limit our comparisons to fatal cases, and one cannot escape the conviction that ignorance alone allowed its early approach. The conclusion is justified that coma should not arrive so quickly.

Two diabetic ghosts vanished in the Allen epoch, and these bore the names of "acute diabetes" and "complete diabetes." In the Naunyn series only 3 per cent, in the Allen period 1.8 per cent, and in the Banting period only one patient out of 165, or 0.6 per cent, died within a month of onset of the disease. In the whole series of 395, only six patients died within a month of onset. I have never seen a fatal case of diabetes which I now believe to have been necessarily acutely fatal. And as for that other specter, "complete diabetes," it does not exist. As long ago as 1907 von Noorden said, "One cannot help thinking that, in man, even when death has resulted from coma the diabetes has not always been quite complete," and in 1915 in a Harvey lecture I felt justified in drawing the conclusion, basing it on the studies of Benedict and myself on the metabolism of severe diabetes, that "it is gratifying to be able to record that the recent experimental evidence confirms the old clinical view that the severe diabetic still retains a power to utilize a portion of the carbohydrate of his diet, small though it may be." The "complete" diabetic patient is an artificial product; a diabetic case, mild, moderate or severe made functionally "complete" by man's improper care.

The Banting epoch, in contrast to the Allen epoch, began with sixty-nine survivors, and to these, during the period, were annexed 165 fresh cases. Of these 234

patients, there have been thirty-four deaths, 15 per cent of those treated. The difference is noteworthy. In 1916, my statistics show that there were 10 per cent of all my patients, old as well as young, who died during that one year; now during four years the percentage of deaths, even among the young, is 15. The average duration of the eighteen fatal cases of the 165 first seen in the Banting period is 1.7 years. For the true results of this period, however, we are forced to study living patients. The sixteen deaths of those beginning treatment in the Allen period and the eighteen deaths of the Banting period require a word of comment. Two of this total of thirty-four fatalities occurred at the Deaconess Hospital. Tommy D. was eighteen years to his credit, who all will hope for diabetes' sake had true diabetes. The fifty-two living soldiers of the Allen period, some of whom joined the diabetic army at the early age of 3 years, have earned my respect, for they have fought diabetes on the average for 6.6 years. Their present state of health indicates that they will give a good account of themselves in years to come. Almost without exception they are tried and trusty soldiers and not only know the commands but obey them. Recently I presented a score of diabetic children, a few from the Allen and the rest from the Banting period, to a group of pediatric societies, and I think the impression conveyed was that diabetic children looked as healthy as normal boys and girls, or even more healthy. The living patients of the Banting period are so numerous (147) and the diabetes is so recent in origin that one would anticipate little in the statistical show; yet it is true that the average living Banting diabetic patient has already exceeded the average duration of life of all diabetic children who died in my series heretofore.

TABLE 5.—*Living Diabetic Children: Duration of Disease*

Period When Seen	Total Cases	Patients Alive, September, 1926	Duration, Years
Naunyn	61	1	18.4
Allen	169	52	6.6
Banting	165	147	2.8
Totals and averages	395	200	3.8

Clinical Evidence of Regeneration.—I often tell the children about my pious Yankee Aunt Lydia, who, according to her New York sister-in-law, lacked moral

TABLE 6.—*Diabetic Children: Duration of Diabetes in All Cases**

			A. Dead														
Period	Total Cases	Dead	Under 1 Yr.	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.	6 Yrs.	7 Yrs.	8 Yrs.	9 Yrs.	10 Yrs.	11 Yrs.	12 Yrs.	13 Yrs.	14 Yrs.	15 Yrs.	Over 15 Yrs.
Naunyn	61	60	18	19	9	7	1	2	1	..	..	2	..	..	1	..	..	..	..
Allen	169	117	25	22	25	12	8	7	2	2	2	..	..	..	..	..	..	1	1
Banting	165	18	5	8	2	2	1	..	..	..	..	..	..	..	..	..	..	..	..
Totals	395	195	48	59	36	21	10	9	3	2	2	2	..	..	1	..	..	1	1
			B. Alive																
Period	Total Cases	Patients Alive	Under 1 Yr.	1 Yr.	2 Yrs.	3 Yrs.	4 Yrs.	5 Yrs.	6 Yrs.	7 Yrs.	8 Yrs.	9 Yrs.	10 Yrs.	11 Yrs.	12 Yrs.	13 Yrs.	14 Yrs.	15 Yrs.	Over 15 Yrs.
Naunyn	61	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Allen	169	52	..	..	..	..	6	22	8	7	3	3	1	1	..	1	..	..	..
Banting	165	147	23	26	36	36	14	7	3	1	..	..	..	1	..	..	..	..	..
Totals	395	200	23	26	36	36	20	29	11	8	3	3	1	2	..	1	..	..	1

* Compiled to September, 1926.

The fifty-two living soldiers of the Allen period, some of whom joined the diabetic army at the early age of 3 years, have earned my respect, for they have fought diabetes on the average for 6.6 years. Their present state of health indicates that they will give a good account of themselves in years to come. Almost without exception they are tried and trusty soldiers and not only know the commands but obey them. Recently I presented a score of diabetic children, a few from the Allen and the rest from the Banting period, to a group of pediatric societies, and I think the impression conveyed was that diabetic children looked as healthy as normal boys and girls, or even more healthy. The living patients of the Banting period are so numerous (147) and the diabetes is so recent in origin that one would anticipate little in the statistical show; yet it is true that the average living Banting diabetic patient has already exceeded the average duration of life of all diabetic children who died in my series heretofore.

Clinical Evidence of Regeneration.—I often tell the children about my pious Yankee Aunt Lydia, who, according to her New York sister-in-law, lacked moral character because she got fat and developed diabetes. At the age of 81 there was 5 per cent of sugar in the urine. With my diet and her religion she became sugar free, and when she was 85 years old I saw her eat blueberry pie with ice cream on top and remain sugar free. "She lived happily ever after" and died at 87, sugar free. Diabetes burns out in the old.

I will cite only a few cases as proof of regeneration, and one of these is in an adult:

I dared not make Colonel P. sugar free in 1913 though his diabetes was of one year standing and his age 31. The next year fasting and undernutrition overcame the glycosuria, and then he played the rôle of a thin diabetic patient until 1922, when his weight had fallen from its highest point of 185 pounds to 107 pounds (84 to 48.5 Kg.), his diet was carbohydrate, 15, protein, 69, fat, 103, and his golf game was gone. Insulin was begun and from 10 to 15 units taken daily until July, 1925, when with 20 units his diet was carbohydrate, 41, protein, 75, fat, 134, and his weight, 123 pounds (55.8 Kg.). Now, in October, 1926, he is sugar free with insulin reduced to 16 units and diet increased to carbohydrate, 79, protein, 76, fat 135, and weight, 122 pounds (55.3 Kg.). Even a government could not make him or me hurry the clinical regeneration of his pancreas, but it did lower his pension because he had regained so much of his health.

The weight of a boy in whom diabetes began in 1920 at the age of 14.8 years had fallen from 122 pounds to 96 pounds (55.3 to 43.5 Kg.) net when insulin arrived, and he could keep sugar free in December, 1921, with a diet of carbohy-

my first child treated with insulin. It was accidentally omitted, he developed an infection, was returned to the hospital in 1922, and died in seven and one-half hours. The other patient entered in the afternoon after two days of coma and a 100 mile ride from New Hampshire in an automobile, and died about six hours later. None of the remaining thirty-two patients were seen by me within seven days of death; in fact, in one case the interval between the last visit and the date of death was forty-five months.

Before leaving the fatal cases I would call attention to a paper by Angeline D. Hamblen on the deaths from diabetes in Massachusetts between 1900 and 1925. Her statistics show a steady rise in the percentage of total deaths from diabetes above the age of 50, and a fall in the percentage for diabetes under the age of 20 years since 1910, which has become more rapid since 1922. Instead of 11 per cent of the deaths in 1900 and 10 per cent in 1910 falling under 20 years of age, the percentage is now 3. These figures are all the more significant because diabetes in children was never so well recognized as today. Miss Hamblen has furnished me the data for the age group under 15 years (table 4).

DIABETES IN THE LIVING

Clinical Evidence on Prognosis.—Sufficient has been said of the single survivor of the Naunyn epoch with

drate, 55, protein, 49, and fat, 86, and in October, 1922, with carbohydrate, 12, protein, 28, and fat, 82. Insulin was begun in October, 1922, and the daily dose in March, 1924, had reached 24 units with a diet of carbohydrate, 70, protein, 74, and fat, 158. By 1925 he was taking 30 units, carbohydrate, 90, protein, 65, fat, 140, and had gained to 145 pounds (66 Kg.). Then by his own intuition he deliberately lowered his weight 10 pounds and now is sugar free on a diet of carbohydrate, 159, protein, 83, fat, 103, with 44 units of insulin.

TABLE 7.—*Gain in Tolerance for Carbohydrate* *

	Date	Glycosuria, per Cent	Carbohydrate	Protein	Fat	Weight, Naked	Insulin
1920	July.....	..	..	..	..	122	0
	August.....	3.0	..	..	..	110	0
	December....	0.0	94	79	91	....	0
1921	October.....	6.6	..	..	..	108	0
	December....	0.0	55	49	89	103	0
1922	October.....	0.0	12	28	82	96	0
1924	March.....	0.0	70	74	158	130	24
1925	December....	0.0	90	65	140	145	30–40
1926	August.....	0.0	150	..	..	135	44–50†

* Boy: age at onset, 14.9 years in July, 1920; height, 5 feet 7½ inches (170 cm.) net; weight, 122 pounds (55 Kg.) net.
† Varying largely with exercise.

George C. began insulin in October, 1925, at the age of 3.2 years, with 0.9 year of diabetes to his credit. His diet was carbohydrate, 45, protein, 40, fat, 53, with 4 units of insulin. In September, 1926, his diet is carbohydrate, 73, protein, 48, fat, 84, with 8 units.

The first requisite for a long life is to live today; and for the present, in order to secure examples of regeneration of the pancreas, it is profitable not to theorize, but just to keep our diabetic children alive.

The course and treatment of ten children who began insulin late in the year 1922 is shown in table 8. Already these children had passed the average expectation of life for children of their time with fatal diabetes. Their average age at the onset of diabetes was 9.5 years; the duration of the diabetes in 1922 was 2.4 years. In the interval of nearly four years, their average weight has increased 40 pounds (18 Kg.), and the average height of the seven children whose data can be compared for 1922 and 1926 has risen $3\frac{3}{10}$ inches. The diet has slowly progressed. In fact, the carbohydrate has doubled, the protein has increased a half and the fat about a third, and a gain in total calories of about 50 per cent has resulted. The figures are as reported to me, but I do not believe they are without some errors. Insulin rose rapidly in amount

TABLE 8.—*Treatment of Ten Diabetic Children, 1922-1926* *

Year	Duration of Diabetes, Years	Weight in Pounds	Height in Inches	Diet				
				Carbohydrate	Protein	Fat	Calories	Insulin
1922	2.4	58	57 7/10	39	44	89	1,052	9
1923	3.4	67.4	.....	45	59	107	1,343	23
1924	4.4	80	.....	58	49	99	1,319	28
1925	5.4	92	.....	53	56	109	1,417	30
1926	6.2	98	61	82	67	103	1,523	32

* Average age at onset, 9.5 years.

the first twelve months until it was freely available, but has since risen slowly. It is notable that the gain of 29 Gm. of carbohydrate, more or less, this last year was at the expense of only 2 units of insulin.

These ten scarred insulin veterans are the sentinels of the diabetic army. They are there to protect a million diabetic patients. One dreads to have them always serve in the advance guard, but if they must so serve, then we should array them with the best armor which modern hygiene affords. This includes treatment of teeth and tonsils, postural training, protection against smallpox, tuberculosis, diphtheria and scarlet fever and minor infections, whether general or local, and always adequate sunlight, hours of rest and hours of play.

Should these diabetic children later marry? The boys can and will at 21 years of age or over; the girls should have diabetes ten years before they assume so much responsibility. A girl who was a trifle older, 19, when her diabetes developed, with 8 per cent of sugar in the urine, was considered to have a hopeless case by an eminent German clinician. Subsequently she married, and seven years after the onset of diabetes gave birth to a beautiful boy who is now 10 years old and the picture of health and her joy today. I might add that in one of my diabetic adults menstruation has returned after an interval of absence of six and one-half years and in another in six years.

DIABETIC HEREDITY IN CHILDREN

The patient with the healthy son suggests heredity, because seven of her relatives have had the disease. For my eight children with diabetes of ten or more years' duration, the heredity, direct and familial, is 60 per cent; for the 200 living children, it is 30 per cent; for the fatal cases, it is 20 per cent, or about the same as for my first 5,000 diabetic patients. Nearly all the long lived diabetic children in the literature inherited the disease, and Holst has recently commented on this feature from another point of view.

RACE

Diabetes is more unusual among children of the Jew than of the Gentile in my series. There are less than 10 per cent of Jewish children among the 395, while the Jewish percentage among my entire series is nearer half again as much.

COMMENT

This is the story of my diabetic children, changed from gloom to justified hope by my friends Naunyn, Allen, Banting and a host of others, all I think best described in the words of the psalmist as those "who, passing through the valley of Baca, make it a well."

SUMMARY

1. More than half of 395 diabetic children treated since 1898 are known to be alive. The duration of eight cases, three dead and five living, has exceeded ten years. One child is living from the Naunyn epoch; fifty-two from the Allen epoch, and 147 from the Banting epoch.

2. The duration of the fifty-one fatal cases in the Naunyn epoch was 2.1 years; of the 110 fatal cases in the Allen epoch, 2.4 years, and of the thirty-four fatal cases thus far in the Banting epoch, 2.6 years.

3. The duration of disease in fifty-two children now living, first treated in the Allen epoch, is 6.6 years.

4. The terms "acutely fatal diabetes" and "complete diabetes" were banished in the Allen period.

5. Pathologic and clinical evidence justifies hope for the future of the diabetic child.

6. The child with diabetes is the pure diabetic patient; he sets the standard for the rest and is the sentinel for the army of a million diabetic patients in this country.

7. Diabetic children deserve the best protection which modern preventive medicine affords.

81 Bay State Road.

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SATURDAY, JANUARY 1, 1927

THE MECHANISM OF THE GALLBLADDER

In a review of the functional significance of the gallbladder, Mann [1] has remarked that the justification for such a discussion lies not so much in what is actually known concerning the functions of this exceptional organ as in what has been imagined concerning its functions. From time to time reference has been made in THE JOURNAL [2] to the shifting views and new investigations that might modify the current doctrines. Thus, the alleged significance of the so-called valves of Heister was debated, with the conclusion that they cannot be considered of major importance with regard to the general physiology of the gallbladder. Our knowledge of the changes that bile may undergo in this organ has been considerably augmented in recent years. There can be little doubt of the occurrence of absorption of water in it, with a consequent concentration of the bladder bile.

The problem of the motor mechanism of the gallbladder has not been easy of solution. It has been formulated in an impressive way by Mann. One of the earliest functions ascribed to the gallbladder, he remarks, was that it served as a reservoir for bile during the periods between feedings. In connection with such a function, a motor mechanism whereby the gallbladder could empty itself would seem to be essential. The smooth muscle fibers in the wall of the gallbladder form an anatomic basis for this action. These fibers seem to be present in all species examined, although data concerning this are not complete. In any event the muscle coat must be extraordinarily thin in some species. The action of this muscle is a crucial consideration with regard to the function of the gallbladder: does the muscle empty the gallbladder or simply aid in preventing distention?

Recently reference [3] was made to Kodama's suggestion that the discharge from the gallbladder represents an elastic recoil from overdistention. The tenability of this was regarded as being strengthened by the meagerness of any convincing evidence of actual motility in the organ. Thus, Mann concluded in 1924 that measurements have never been made of the force of contraction of the gallbladder that are totally free from objections. There seems to be no doubt that the gallbladder has a contractile mechanism which exerts pressure on its contents, but the contractile power of its own intrinsic muscles does not seem to be great, and in all probability it cannot exert a pressure greater than the secretory pressure of the liver. The uncertainties that have arisen are indicated in Winkelstein and Aschner's recent conclusion [4] that the gallbladder empties through the cystic duct and that intra-abdominal pressure at the height of inspiration is sufficient to force the bile into the duodenum; the respiratory mechanism is the motor of the gallbladder; peristaltic or contractile movements of the musculature, if they occur at all, can be only of minor importance in the emptying of the gallbladder.

In contrast with this, Higgins and Mann [5] of the Mayo Foundation are now convinced that the gallbladder may empty its contents through its own intrinsic musculature. They believe that the secretory pressure of the liver is of little significance in emptying the vesicle; and their observations of bladder discharge under conditions in which intra-abdominal pressure is averted exclude the latter as a major factor in the process. The study of the subject has been greatly facilitated of late by the introduction of mediums opaque to the roentgen ray into the gallbladder, so that its movements can be followed roentgenographically; likewise by the demonstration that the organ will empty its contents into the duodenum during the digestion of fats.[6] Employing these aids, Whitaker [7] also has noted, in studies at the Harvard Medical School, that emptying of the gallbladder under the stimulus of a meal of fat is produced primarily by the muscular tunic of the gallbladder, extrinsic mechanical factors not having an appreciable effect. Emptying probably does not depend on a reflex nervous mechanism involving extrinsic nerves since vagal stimulation does not have any effect and denervated gallbladders empty normally. Direct evidence that the expulsive action of the gallbladder is due to a hormone has not been found, although, according to Whitaker, it invariably depends on the digestion and absorption of proteins or fats, especially the latter.

Another problematic feature of the gallbladder function has been concerned with the so-called sphincter of Oddi. Mann has concluded, after weighing the

1. Mann, F. C.: The Functions of the Gallbladder, Physiol. Rev. **4**: 251 (April) 1924.
2. The Valves of Heister, editorial, J. A. M. A. **87**: 1744 (Nov. 20) 1926.
3. The Emptying of the Gallbladder, editorial, J. A. M. A. **87**: 943 (Sept. 18) 1926.
4. Winkelstein, Asher; and Aschner, P. W.: Am. J. M. Sc. **171**: 104 (Jan.) 1926.
5. Higgins, G. M., and Mann, F. C.: Observations on the Emptying of the Gallbladder, Am. J. Physiol. **78**: 339 (Oct.) 1926.
6. Boyden, E. A.: Abstr. Anat. Record **24**: 388, 1923; Anat. Record **30**: 333, 1925. Sosman, M. C.; Whitaker, L. R., and Edson, P. J.: Am. J. Roentgenol. **14**: 495 (Dec.) 1925. See also Emmel, V. E.: Emptying of the Gallbladder, J. A. M. A. **87**: 2019 (Dec. 11) 1926.
7. Whitaker, L. R.: The Mechanism of the Gallbladder, Am. J. Physiol. **78**: 411 (Oct.) 1926.

available observations, that after all the possible sources of error have been considered, there is definite physiologic evidence of a sphincter at the end of the common bile duct which can withstand a small but measurable pressure in the duct. Whitaker joins in the opinion that we are dealing not with a true sphincter but simply with a thickening of the muscle of the intestinal wall or common bile duct, which, being in more or less constant tonus, maintains a slight resistance to the outflow of bile, enough to allow the gallbladder to fill during the intervals of digestion, and perhaps to counteract the slight expulsive pressure of the elastic tissue of the organ, but which is readily overcome when the smooth muscle of the gallbladder is thrown into action during digestion. The action of the so-called sphincter papillae seems to Whitaker to allow the gallbladder to fill during the intervals between periods of digestion; but the vesicle will not empty after the sphincter is cut, feeding being necessary, as in normal cases, to effect this result.

Clinicians have been greatly interested in Meltzer's [8] idea of a reciprocal nervous relation between the sphincter of Oddi and the gallbladder. It has formed a theoretical basis of procedures for gallbladder drainage. As the gallbladder can function normally even when denervated, the emptying under the influence of magnesium sulphate in the duodenum at the papilla cannot now be explained as heretofore. The most reasonable view, Whitaker argues, is that the salt paralyzes the muscle of the intestine about the termination of the common bile duct and allows the elastic tissue of the distended gallbladder to express some of its contents. This action is slight, however, and complete emptying follows only the ingestion of food, especially fat.

THE HOSPITAL DIETARY

Dietary conditions in hospitals are continually the subject of critical comment. As long as the dominating purpose of the administration was to secure the maximum of food fuel at a minimum of cost, the hospital regimen was bound to be discussed primarily in terms of calories and cents; but the energy requirement can no longer be considered as a whole without reference to the question of the most desirable distribution of the total calories among the different foodstuffs. Not long ago, Graham Lusk [9] wrote that nutrition means fuel for the machinery, new parts with which to repair the machine, and minute quantities of vitamins which produce a harmonious interaction between the materials in the food and their host. Sherman [10] has recently magnified the requirement to include the best use of food. True economy in the use of food, he remarks, contemplates physiologic as well as pecuniary economy. And by physiologic economy is meant the adaptation of the food supply to the best possible nutrition and not merely the meeting of conventional standards of adequacy. Food, then, Sherman adds, should be so chosen and used that the health and efficiency of the individual shall be served in the highest degree, and at the same time used with such regard to the economies of the food supply as a whole that this ideal of optimal nutrition shall be brought within the reach of all. To a certain extent public opinion already demands that the food supply shall be such as to serve the interests of health. But in the minds of many this does not yet extend beyond the requirement that food shall not in itself be directly detrimental to health.

Coincident with the new standards so forcefully formulated, an expert service not formerly available has been developed. Hospital food problems have become the concern of dietitians—persons who are trained to approach the new questions in a professional spirit and with some scientific competence. Hospital dietetics is thus being developed to supplement the work of the clinical staff. It serves alike where normal nutrition and where dietotherapy are involved; for most hospitals must provide nourishment for many who are not patients. Each hospital is in some measure a hostel for its staff.

It is gratifying to observe the progress that is being made under the newer regimens. The nutritive analysis of hospital food expenditures such as has recently been made by Wheeler [11] at the General University Hospital, State University of Iowa, may serve as an illustration. A personnel of approximately 700, among whom 200 are not patients, is supplied with an average daily energy service of 3,000 calories or more for each person. This is secured from a large variety of seasonable sources so as to allocate suitable proportions of the principal groups of nutrients. Protein is furnished in conventional amounts. During a four-months period of observation, approximately one half to seven tenths of the total protein was furnished by milk, meat, eggs and fish; one fifth by cereals, and one fifth by vegetables and fruits. More than 50 per cent of the total protein each month was furnished by animal foods. A wide variety of fruits and vegetables enter into the rations. Special items are, of course, furnished when they are essential.

The Iowa report indicates the introduction of a surprisingly diversified general diet. This is regarded as advantageous from various standpoints. When the number of patients is large and individual attention cannot be given to all, an assured adequate general diet makes opportunity and time for special work with patients who particularly need it. The cost has not been prohibitive. During four typical months of

8. Meltzer, S. J.: Am. J. M. Sc. **153**: 469 (April) 1917.
9. Lusk, Graham: The Fundamental Basis of Nutrition, Yale University Press, 1923.
10. Sherman, H. C.: Chemistry of Food and Nutrition, New York, the Macmillan Company, 1926.
11. Wheeler, Ruth; and Shalla, Edna: A Nutritive Analysis of Hospital Food Bills, J. Am. Dietetic A. **2**: 10 (June) 1926. Wheeler, Ruth; and Moe, Vivian: An Economic Analysis of Hospital Food Bills, J. Am. Dietetic A. **2**: 28 (June) 1926.

1924-1925 it averaged 53 cents per person each day. Of this about 22 per cent was spent for meat, from 5 to 10 per cent for eggs, and about 15 per cent for milk and milk products, about 25 per cent for fruit and vegetables, and from 22 to 24 per cent for fuel foods. Such is the experience of an institution in which rare or unusual foods necessarily play an insignificant part in the provision of adequate nutrition. Expert institutional dietetics is no longer looked on in well informed quarters as a "frill."

STEPS TOWARD DRUG THERAPY IN DIABETES

In the history of our knowledge of diabetes the name of Minkowski, now director of the medical clinic of the University of Breslau, is eminent. The foundation stone of most of the advances made in the study of diabetes in the last four decades is the classic observation of von Mering and Minkowski, in 1889, that complete removal of the pancreas from animals leads to the appearance of a severe diabetes. From this fundamental fact, Minkowski long ago drew the conclusion that the pancreas must secrete something besides the pancreatic juice, which unknown substance is necessary to prevent diabetes. This conclusion waited more than thirty years for its final proof through the production of insulin by Banting, Best and Collip, although numerous other experimenters had foreshadowed this demonstration by obtaining pancreatic preparations with greater or less effect on carbohydrate metabolism. Now comes a new addition to the story of diabetes from the clinic of Minkowski, this time the work of his junior colleagues Frank, Nothmann and Wagner.[1]

Their work is an interesting illustration of the course of events in laboratory research, carrying on from one observation on the subject through a train of studies on other subjects to a goal perhaps not in sight at the start. In this case, the initial impetus came from studies at Yale by Underhill and Blatherwick on parathyroid tetany, which these authors sought to relate to hypoglycemia. As Noel Paton and Findlay in England had maintained that tetany was produced by guanidine, a Japanese investigator, Watanabe, studied the effect of guanidine on blood sugar and found that it produces a hypoglycemia. This picture of true internationalism in science is rounded out by the Germans in Minkowski's clinic, who extended Watanabe's studies and found that although this effect of guanidine in reducing blood sugar is marked, it cannot be used in the treatment of hyperglycemia because of the toxicity of the substance. The trail broken at this point, they harked back to a remote field, the chemical studies on herring sperm made by Kossel in Heidelberg, which had disclosed a new guanidine compound named agmatine, recognized by the chemists as the amine derivable from the familiar amino-acid arginine. This agmatine was found to retain the insulin-like effect of lowering blood sugar, with less toxicity than guanidine, and so the direction was pointed in which to search for still less dangerous substances with the desired action on blood sugar. Following established principles, they at last developed a new compound, which had a greater effect on blood sugar with a lower toxicity. The chemical details of this agent are not now revealed, but are promised for a subsequent report.

The important part of the story is that the new agent exhibits a marked power to reduce the sugar content of the blood of normal or diabetic animals, and to accomplish in diabetic patients most of the effects of insulin. Not only this, but it is said to be almost as effective when given by mouth as when injected subcutaneously. It differs from insulin not only in the important fact that it can be absorbed unchanged from the digestive tract but also in producing its effects much more slowly. Commonly the effects are not fully reached on the first day of drugging, but the effects are of long duration, so that after two days of treatment the effect on the sugar content of the blood and urine persists through a third day or longer. The quantity of acidosis substances in the blood and urine falls rapidly, indicating that the drug really causes an increased burning of sugar, like insulin. There is also experimental evidence that it increases the storage of glycogen. Unfortunately this agent is not entirely devoid of toxic effects, for with overdosage there is complaint of loss of appetite, abdominal distress from increased peristalsis, and sometimes nausea, vomiting and diarrhea. These symptoms are avoided by omitting the drug every third day. Up to the time of this first report, seventy patients had been treated with the new preparation, some for as much as six months, with apparently satisfactory results and without evidence of injury. Nevertheless, the existence of the deleterious effects mentioned raises the question of the safety of the new drug for the treatment of a chronic disease. Frank and his colleagues recognize this fully, and consider that it is not the ideal drug for use in diabetes, but only represents a useful step in this direction. They also point out that because of the slowness of its action it cannot replace insulin in the treatment of diabetic coma or even precoma stages. In cases of moderate severity it enables the patient to utilize daily 40 or 50 Gm. more sugar without glycosuria than he could without this drug or insulin, and without the necessity of insulin injections. In the severe forms of diabetes it cannot replace but may supplement insulin, so that much smaller doses of the latter need to be injected. It has been found to have the same beneficial effects as insulin on such manifestations of diabetes as pruritus, skin infections and gangrene, and in a few cases

1. Frank, E.; Nothmann, M., and Wagner, A.: Ueber synthetisch dargestellte Körper mit insulinartiger Wirkung auf den normalen und diabetischen Organismus, Klin. Wchnschr. 5: 2100, 1926.

of diabetes refractory to insulin because of coexisting infections, the new drug was effective.

What the relation of this substance is to insulin cannot be said, as the chemical nature of insulin is unknown. Certainly it is not insulin, since it takes about 1 mg. to produce the same effect on blood sugar as 0.01 mg. of Abel's purest insulin preparation. The presence of insulin is now identified by its physiologic effects. Other substances also have a similar effect on blood sugar, of varying degrees of activity. Probably the active insulin-like preparations that have been obtained from many sorts of tissues, not only animal but also plant tissues, are not all the same thing as pancreatic insulin. The new contribution of Frank, Nothmann and Wagner marks a step in the direction of a better understanding of the nature and mechanism of the insulin effect, as well as offering the hope of early improvement in the treatment of patients with diabetes.

Current Comment

MEDICINE AND THE SOUL

The clever young men who manufacture and who reflect the news of the day in the public prints are ever seeking new pastries with which to tantalize the palates of a sensation-jaded public. Not long since a leading surgeon, perhaps forced to weariness by the constant demands of these persistent journalists, let fall a few perfunctory remarks relative to the soul. What they were matters little if at all. Certainly he had nothing new to contribute to the dialectics of five thousand years on this subject. But the astute youths of the press were immediately like a pack in full cry on a new scent. A surgeon had spoken of the surgical search for the soul; let us see what other medicos might have to say relative to this morsel! A physiologist located the soul in the electric potential of the cells; an oto-laryngologist maundered uncomprehendingly about the glands; an orthopedist located the soul in the heart; even a urologist talked learnedly of "electric ions" instead of the anatomy with which he is presumably most familiar. And the end of this piffle is not yet! For fifteen hundred years scientific medicine languished in obscurity while the theologians of the middle ages fought battles of words on the seat of the soul within the human body. Apparently some, at least, of our modern colleagues are willing to revert to that epoch. There are, however, other aspects of the situation with a more serious side. What respect can either the press or the public have for the scientific attainments of those who will lend themselves to such preposterous publicity? What credence can they be expected to give to scientific fact when it is accompanied by hopeless drivel? Even the moronic readers of the press that developed this series of interviews know better than to take these by-products of newspaper activities seriously. The harm that is done is worked on the serious and legitimate efforts that are being made to give to the public through the press the established facts of medical science.

BASAL METABOLISM IN BERIBERI

With the development of accurate methods for the study of the total metabolism of the body, it has become increasingly probable through experiment that the intensity of the basal metabolism varies directly with an animal's physiologic condition. Avitaminosis represents a pronounced deviation from the normal. It might be expected, therefore, that the metabolism will show unmistakable variations when there is a shortage of the essential vitamins. Recently reference [1] was made to the demonstration that deprivation of vitamin B does not of itself lower the basal metabolism, nor is the latter altered by large doses of vitamin-bearing products. These results were secured on dogs. In correspondence with part of this study, Okada and Sakurai,[2] working in the Imperial University at Tokyo, have observed a conservation of the metabolic processes in uncomplicated cases of human beriberi. In most of these, normal values in the basal metabolism and respiratory quotient were found. When cardiac incompetence threatened, an increased basal metabolism was observed. When paralysis and atrophy became marked, a diminution in the basal metabolism occurred. These facts are significant even if the interpretation of human beriberi as an instance of vitamin B deficiency shall not be maintained.

Association News

THE WASHINGTON SESSION

Special Exhibit on Morbid Anatomy in the Scientific Exhibit

The Exhibit on Fresh Pathology, which has become an established feature in conection with the Annual Scientific Exhibit, will be under the direction this year of Dr. Oscar B. Hunter, professor of bacteriology and pathology, George Washington University. The other members of the Committee on Fresh Pathology as announced by the local Committee on Scientific Exhibit are: Tomas Cajigas, M.D., professor of pathology, George Washington University; Major George R. Callender, Army Medical Museum; Major James F. Coupal, Army Medical Museum; Marion Dorsett, M.D., Bureau of Animal Industry, Department of Agriculture; Walter Freeman, M.D., pathologist, Government Hospital for the Insane; Lieut. Comdr. John Harper, Naval Medical School and Hospital; Lieut. Comdr. James E. Houghton, Naval Medical School and Hospital; Janvier W. Lindsay, M.D., pathologist, Garfield Memorial Hospital; Herbert Martyn, M.D., deputy coroner for the District of Columbia; George W. McCoy, M.D., Hygienic Laboratory, U. S. Public Health Service; J. Ramsey Nevitt, M.D., coroner for the District of Columbia; Lester Neuman, associate professor of pathology, Georgetown University, Emergency, Georgetown, Providence and Gallinger hospitals; L. H. Prince, M.D., United States Veterans' Bureau; E. Clarence Rice, pathologist, Garfield and Children's hospitals; Joseph D. Rogers, M.D., deputy coroner for the District of Columbia; Maurice A. Selinger, M.D., pathologist, Children's and Episcopal hospitals; Major Charles G. Sinclair, Walter Reed Hospital; Lieut. Comdr. Eben E. Smith, Naval Medical School and Hospital; Harry K. Walters, D.V.S., inspector in charge of Washington meat inspection, U. S. Department of Agriculture; Eugene R. Whitmore, M.D., professor of bacteriology and pathology, Georgetown University. Fresh pathologic material will be obtained daily from the hospitals in Washington, supplemented by some from the Bureau of Animal Industry.

1. Vitamin B and "Vitality," editorial, J. A. M. A. **86**: 1987 (June 26) 1926.
2. Okada, S., and Sakurai, E.: The Basal Metabolism in Beriberi, Arch. Int. Med. **38**: 770 (Dec.) 1926.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Another "Doctor" Not in the Directory.—An automobilist, well versed on medical subjects, called on a practitioner in Globe, Dec. 23, 1926, and represented himself to be a graduate of the University of Virginia in 1902; a former practitioner of Baltimore, and recently of Los Angeles, and in need of gasoline and oil. Our correspondent consulted the directory of the American Medical Association and found the name given by the "doctor." Further conversation revealed, however, that he had never heard of the city designated in the directory after his name. He then asked for a sedative to quiet his nerves.

CALIFORNIA

Typhoid Outbreak.—Eleven cases of typhoid fever were recently reported from Sanger. The source of the epidemic was said to be a certain dairy, which, at the time of the report, had been closed by the health officials. A member of the state health department, Dr. Charles H. Halliday, went to Sanger to assist in the control of the epidemic.

Health at San Diego.—Telegraphic reports to the U. S. Department of Commerce for the week ending Dec. 18, 1926, from sixty-five cities with a total population of about 29,000,000 indicate that the highest mortality rate (24.2) was for San Diego, and that the mortality rate for the group of cities as a whole was 13.1. The mortality rate for San Diego for the corresponding week last year was 20.7 and for the group of cities, 13.

GEORGIA

Personal.—Dr. Charles H. Richardson, Jr., chairman of the joint board of health of Macon and Bibb counties, resigned, effective January 1, and Dr. Charles L. Ridley has been appointed to that position.

Voters Approve Registration of Births and Deaths.—About 90 per cent of the total votes cast on the constitutional amendment providing for the filing of birth and death certificates were for ratification. This is said to be the greatest percentage of approval any amendment has received in the last decade.

Toxin-Antitoxin Campaign.—The Medical Association of Georgia, through its journal, has been cooperating with the U. S. Public Health Service in conducting a toxin-antitoxin campaign in Georgia by means of which in the last two months more than 25,000 children have been immunized against diphtheria. The results for the first campaign of this kind are remarkable, and in at least one militia district in the state all children under 10 years of age have been immunized.

Society News.—Among others, Dr. James J. Clark addressed the Atlanta Medical Journal Club, November 24, on "Review of the Latest Practical Achievements in Radiology."——Dr. Hal C. Miller addressed the Fulton County Medical Society, Atlanta, November 4, on "Advances in Abdominal Surgery."——Dr. Wanzie A. Davis has been elected president of the Macon Academy of Medicine, Surgery, Dentistry and Pharmacy for the ensuing year.——The anniversary and banquet of the Fulton County Medical Society, Atlanta, will be held at the Atlanta Athletic Club, January 6.

ILLINOIS

County Sanatorium on Jacks.—The subsidence of the new Madison County Tuberculosis Sanatorium at Edwardsville cracked the floors and side walls and apparently affected the level of the institution making it necessary to realign the entire hospital. The December Madison County *Doctor* notes that the entire huge building was raised from four to twelve inches while forty patients were under treatment, and that 500 jacks were placed under the walls and supporting columns to stabilize the structure. The sanatorium will remain jacked up until subsidence has ceased, when the walls and pillars will again be connected with the foundation.

MASSACHUSETTS

Personal.—Dr. Haven Emerson, New York, presented a report on tuberculosis in Boston at a special meeting of the Boston Health League, Dec. 17, 1926; Dr. Emerson recently conducted a study in Boston at the request of the mayor.

Appointments at Harvard.—At a meeting of the Faculty of Medicine of Harvard University, Nov. 5, 1926, the following appointments were recommended. According to the *Boston Medical and Surgical Journal*, they have been authorized: Dr. Maurice Fremont-Smith, instructor in medicine for one year (reappointed); Dr. William B. Castle, assistant in medicine for one year (reappointed); Dr. Theodore S. Wilder, research fellow in pediatrics, and Dr. Harry Blotner, assistant in medicine.

Dr. Cort Goes to Hartford.—Dr. Parker M. Cort, Springfield, has been appointed associate medical director of the Ætna Life Insurance Company of Hartford, Conn. Dr. Cort has practiced medicine in Springfield for twenty years; he is president of the Hampden County Tuberculosis and Public Health Association, vice president of the National Tuberculosis League, and during the World War was chief tuberculosis officer of the Seventy-Sixth Division; he has been plant physician for the A. G. Spalding Brothers Company at Chicopee and a consultant for insurance companies in Springfield.

Society News.—Dr. George S. Hill has been elected president of the Trudeau Society of Boston for the ensuing year.——The Hampshire District Medical Society was addressed by Dr. F. F. Tucker, superintendent, Williams-Porter Hospital, Tehchow Shantung, China, Dec. 1, 1926, on "Planting Modern Medicine on Ancient Chinese Soil."——Dr. John B. Deaver, Philadelphia, and Dr. James S. Stone, Boston, president of the Massachusetts Medical Society, addressed the semiannual meeting of the Worcester District Medical Society, Nov. 20, 1926, on "Modern Conception of Upper Abdominal Disease" and "The Workmen's Compensation Act," respectively. The meeting was held in the chamber of commerce building, Worcester, and the dinner at the Hotel Bancroft. Among the other guests were Mr. Roscoe Goddard, secretary of the chamber of commerce, and Hon. M. J. O'Hara, mayor of the city.——The Massachusetts Benevolent Medical Society, which, for many years, has worked to relieve unfortunate physicians, their widows and children, has elected Dr. George W. Gay president, and Dr. Robert M. Green, 496 Commonwealth Avenue, Boston, secretary.

MINNESOTA

Conference on Child Health.—Forty medical, civic and social organizations are sponsoring a conference to be held in Minneapolis about February 17-19 for the purpose of educating parents on child health; delegates from these organizations throughout the northwest will be invited. The plan is said to have originated with the Hennepin County Medical Society; a guarantee fund of $5,000 is being raised to cover initial expenses.

Society News.—Dr. John B. Deaver, Philadelphia, addressed the Minneapolis Surgical Society, Dec. 2, 1926, on "Chronic Pancreatitis," illustrated by lantern slides.——Drs. George E. Brown and Alfred W. Adson, Rochester, addressed the Minnesota Pathological Society at a recent meeting at the University of Minnesota on "Physiologic Effects and Surgical Applications of Lumbar Sympathetic Ganglionectomy and Ramisectomy."——Dr. Jay A. Myers, Minneapolis, has been elected president of the Minnesota Public Health Association, and Dr. Edward A. Meyerding, St. Paul, executive secretary.——Dr. John P. Schneider, Minneapolis, addressed the Interurban Academy of Medicine (Duluth-Superior), Superior, Nov. 17, 1926, on "A New Theory of the Etiology of Pernicious Anemia and Certain Facts Supporting the Same."——At the annual meeting of the Interurban Medical Society, Dr. Benjamin F. Davis, Duluth, was elected president, and Dr. Mark H. Tibbetts, Duluth, secretary-treasurer.

MISSISSIPPI

Societies Consolidate.—At the December meeting of the Warren County Medical Society, it was decided to call the newly consolidated society the Issaquena-Sharkey-Warren Medical Society; Dr. Edley H. Jones, Vicksburg, was elected president, and Dr. Leon S. Lippincott, Vicksburg, vice president; Dr. James Percy Wall, Jackson, gave an address on "The Life of Louis Pasteur."——At a meeting of the Winona District Medical Association, Winona, Dec. 7, 1926, among others, Drs. John W. Barksdale, Jackson, and James K. Avent, Grenada, presented a paper on "Septic Peritonitis"; Dr. Otis

S. Warr, Memphis, Tenn., "Practical Management of Hypertension."——Dr. Henry Boswell, Jr., Sanatorium, addressed a joint meeting of the Tennessee State Tuberculosis Association and the Civitans Clubs at Knoxville, recently, to outline a program for the care of the tuberculous to be brought before the Tennessee legislature. Dr. Boswell's subject was "Rôle of Sanitation in Control of Tuberculosis."——Dr. Altus B. Harvey, Tylertown, has been elected president of the Tri-County Medical Society at Brookhaven. At a recent meeting, Dr. Carrol W. Allen, New Orleans, La., addressed the society on "Local Anesthesia in Abdominal Surgery."

MISSOURI

St. Louis Students Offer Blood to the Poor.—Three hundred and ten medical and dental students of St. Louis University called on Dean Hanau W. Loeb, Dec. 23, 1926, and presented voluntary signed offers to give without charge their blood for transfusion purposes to the poor of St. Louis. The need for donors had become acute. The Community Council of St. Louis recently appointed a Transfusion Committee and offered $25 to any suitable donor, but the available list was always inadequate. Conferences were held, Dec. 20, 1926, with the student class officers at St. Louis University in order to augment the transfusion list under about the same terms; practically no students were willing to give their blood for pay. The beneficiaries will be the poor at the City Hospital and the hospitals associated with St. Louis University—St. Mary's, St. John's, St. Anthony's, Alexian Brothers, Mount St. Rose Sanatorium and St. Mary's Infirmary. The administrative board has specified certain restrictions so as to limit properly the use of the students' offer (THE JOURNAL, April 3, 1926, p. 1080).

NEW JERSEY

Dr. Mravlag Retires.—Dr. Victor Mravlag, Elizabeth, after forty-seven years in the service of the city, retired, Dec. 31, 1926, as head of the board of police commissioners at the age of 78. Dr. Mravlag was appointed a city physician in 1879 and among the other municipal positions he has held was that of mayor of Elizabeth for twelve years.

Driving While Intoxicated.—Of the forty-five persons arraigned before the state motor vehicle commissioner during the week ending December 11 for infraction of the motor laws, thirty-two were charged with driving while intoxicated. All except seven of those arraigned, had their licenses revoked. Their names and addresses were published in the New York *Times*. Thirty-four persons were arraigned for violation of the motor laws for the week ending Dec. 18, 1926; of the thirty-two whose licenses were revoked, fifteen were penalized for driving while intoxicated.

NEW YORK

Hospital News.—Dr. Abram S. Tepper, Far Rockaway, has been elected president of the medical board of St. Joseph's Hospital.——Bayonne Hospital has raised $600,000 for construction purposes.——Dr. Louis Gross has been appointed acting director of laboratories at Mount Sinai Hospital.

State Society Objects to Further Narcotic Regulations.—The Medical Society of the State of New York has adopted resolutions petitioning its congressmen, individually and collectively, to oppose any amendment of the Harrison Narcotic Law that would make more difficult the conditions under which physicians are obliged to work. The society requests immediate and continued opposition to favorable action on Bill 11612 (H. R.) and its companion Bill 4085 (S.) for the following reasons:

1. It would be an unwarranted hardship on the physician to deny him registration under the Harrison Narcotic Act for a period of from one to two years if convicted of any violation whatsoever of the act, no matter how technical and unimportant the offense may be.
2. It is unnecessary to give collectors of internal revenue authority to refuse registration under the Harrison Narcotic Act to physicians whom such collectors believe to be narcotic addicts, because the law of the state of New York provides for the withdrawal of the license to practice medicine from any physician convicted of being a narcotic addict, and the amendment suggested in both of these bills makes no provision for notice and hearing before such refusal, nor for an appeal from the collector's decision.
3. It is an unfair precaution, and the imposition on pharmacists of an impossible task, to authorize and require that they refuse to dispense narcotic drugs on any prescription issued by a physician if the pharmacist is of the opinion that the physician did not issue the prescription in the course of his proper professional duties.
4. It must be conceded that physicians should be permitted to use their best judgment in deciding the character and type of treatment to be employed on any particular patient they have under their care, and hence, it would be entirely wrong for any law to forbid absolutely, and under any and all conditions whatsoever, the ambulant treatment of narcotic addicts.
5. It would be an inexcusable imposition to make physicians keep more records than are now required, of narcotic drugs administered and dispensed in their services to the public.

New York City

Hospital News.—The Clinical Society of the Hospital for Joint Diseases has elected Dr. Jacob Sobel president for the ensuing year, and Dr. Isadore Zadek, secretary.

Dr. Adler Lectures.—Dr. Alfred Adler of Vienna gave a series of three lectures, Dec. 13-15, 1926, in the Community Auditorium, New York, on "Individual Psychology in Theory and Practice."

Third Harvey Lecture.—Dr. Leonor Michaelis of the Friedrich Wilhelm University, Berlin, will give the third Harvey Society Lecture at the New York Academy of Medicine, One Hundred and Third Street and Fifth Avenue, January 22, 8:30 p. m., on "Some Problems Concerning the Acid and the Enzymes of the Gastric Juice."

Memorial Resolutions.—The medical board of the Willard Parker Hospital, Drs. Bingham, Berg, Park and May adopted a series of resolutions, November 23, in memory of the late Dr. Robert Justice Wilson, who for more than twenty years was associated with the board and was director of the bureau of hospitals of the city health department.

Dr. Wynne Appointed Deputy Health Commissioner.—Dr. Louis I. Harris, commissioner of health, has appointed Dr. Shirley W. Wynne, director of hospitals, to be deputy health commissioner, an office created in November by the municipal assembly. Dr. Wynne has been associated with the health department for about nineteen years and recently has been the director of hospitals.

Dinner to Dr. Wendell C. Phillips.—The officers and council of the Medical Society of the State of New York will tender a testimonial dinner at the Waldorf-Astoria, January 27, in honor of Dr. Wendell C. Phillips, President of the American Medical Association, in recognition of his services to organized medicine. The chairman of the committee for the dinner is Dr. Nathan B. Van Etten.

Personal.—Dr. Herbert R. Edwards, medical field secretary of the National Tuberculosis Association, has been granted a leave of absence to participate in a comprehensive survey of Indian affairs, which will be carried on by the Institution for Government Research, a private organization at Washington, at the request of the secretary of the interior, Dr. Hubert Work, with the approval of the commissioner of Indian affairs, Charles H. Burke.

Institute of Parental Education.—There will be a ten day institute on parental education, January 17-28, at the Child Study Association of America, 54 West Seventy-Fourth Street, for persons engaged or preparing to engage in work with parents. The institute will comprise ten lectures by prominent scientists, round-table conferences on various subjects on parental education, and visits to clinics, courts, special classes and institutions. The registration will be limited to 150 persons and the fee will be $20.

County Presidents Confer with City Health Officer.—The presidents of the five county medical societies—Dr. O. Paul Humpstone, Kings County Medical Society; Dr. Denis E. McMahon, Queens County Medical Society; Dr. Edward R. Cunniffe, Bronx County Medical Society; Dr. William P. Healy, New York County Medical Society, and Dr. William R. Janeway, Richmond County Medical Society—held a conference with the commissioner of health, Dr. Louis I. Harris, and Dr. William J. O'Shea, Dec. 18, 1926, with reference to the physical examination of children before their entrance into the public schools. It was decided, it is reported, to ask parents who are able to have their children examined by family physicians before entering school. Heretofore, parents have largely ignored notices sent by the health department to families to have children examined by private physicians, and, as a result, the department of health has examined also children of the well-to-do. The county presidents agreed to impress on family physicians the need of thorough examinations of school children. The medical societies will take steps toward developing a suitable method of conducting this kind of work.

Society News.—Dr. Ervin Torok has been elected president of the American-Hungarian Medical Association, and Dr. Alexander Laszlo, secretary; at the last meeting of the society at the New York Academy of Medicine, Dr. Joseph Imre, Jr., professor of ophthalmology, University of Pecs, Hungary, gave an address on "Eye Symptoms and Eye Disturbances Caused by Endocrine Disturbances."——The New York Physicians' Association held a symposium on cancer, Dec. 22, 1926, at the Chemists' Club, in which Drs. George E. Pfahler, Philadelphia, Henry Schmitz, Chi-

cago, Maurice J. Sittenfield and Albert A. Berg were the speakers.——Dr. Stratford F. Corbett has been elected surgeon of the New York Society of Military and Naval Officers of the World War. —— Dr. Joseph Vandenberg has been elected president of the Eastern Medical Society for the ensuing year, and Dr. Philip Horowitz, secretary.—— Dr. George M. Fisher, president, Medical Society of the State of New York, addressed the Medical Society of the County of Kings, Dec. 21, 1926, on "Relation of Physician to the Practice of Preventive Medicine"; Dr. Wendell C. Phillips, President of the American Medical Association, on "Gospel of Health," and Dr. John J. A. O'Reilly, on "Relation of the County Medical Society to the State Medical Society and the A. M. A."——Dr. Isaac Glassman has been elected president of the Yorkville Medical Society for the ensuing year, and Dr. Maurice I. Meltzer, 242 East Fifteenth Street, secretary.

OHIO

Physicians in the Legislature.—At the November general elections, Dr. Errett LeFever, Glouster, was returned to the state senate, and Dr. Harry S. Davidson, Akron, returned to the house; the former has served five terms in the legislature and the latter two. Dr. Rinaldo M. Hughey, Washington Court House, was elected to the house.

Personal.—The tablet unveiled recently at the Broad Street Presbyterian Church in memory of Dr. Oren N. Dages was the gift of Foster Copeland, president of the City National Bank; Dr. Dages lost his life about sixteen years ago in an attempt to rescue two women from drowning.——Dr. Maurice I. Miller, Troy, has resigned as county physician and Dr. L. N. Lindenberger has been appointed.——Dr. Josiah C. McCracken, for many years a medical missionary in China, was recently entertained by the University of Pennsylvania Club of Cleveland.——Dr. Frank W. Dannecker has been elected health officer for Van Wert.

School for County Health Officers to Be Established.—Following conferences in New York, Dr. John E. Monger, state director of health, announced, Dec. 11, 1926, that the International Health Board of the Rockefeller Foundation will establish a school of instruction for county health officers in Ohio. A survey is being made of the counties looking toward a location for the school. The location will be some rural county with a relatively large population but without a large city. The school will be open to health officers from all parts of the United States. The Rockefeller Foundation will bear the expense of training in county health work.

Tuberculosis Clinic at Uhrichsville.—At the request of the Tuscarawas County Medical Society, the bureau of tuberculosis of the state health department conducted a clinic at Uhrichsville, recently, to which ninety-five patients of the city of Dennison and the southern half of Tuscarawas County were taken; fourteen were found to be tuberculous, twenty-seven suspects and fifty-four nontuberculous. The results of the examinations were given to the patients' family physicians to whom each patient agreed to go for consideration of the findings. The Tuscarawas County Medical Society held a special meeting a few days after the clinic to discuss the diagnoses and treatment of these patients. The clinic was in charge of Dr. Jackson A. Frank, chief of the division of hygiene, and the diagnosticians were Dr. Frank C. Anderson, superintendent, Ohio State Sanatorium; Dr. William M. Garrison, superintendent, Belmont County Sanatorium, and Dr. John J. Randall, assistant superintendent, Warrensville Sanatorium.

OKLAHOMA

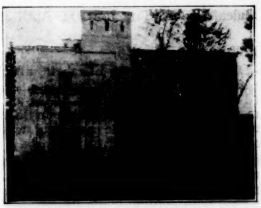
Hospital News.—The twenty bed Ruth Hospital, Duncan, has been purchased by Dr. J. L. Patterson from Dr. G. H. Wallace.——Paul H. Fesler has resigned as superintendent of the University of Oklahoma Hospital, Oklahoma City, and has been appointed superintendent of University Hospital, Minneapolis.

Postgraduate Courses for Every Practicing Physician.—The extension division of the University of Oklahoma has been conducting courses for physicians in various sections of the state; the next course will be given in southwestern Oklahoma, in Lawton, Waurika, Mangum, Altus, Hobart and Sayre in pediatrics. There will be one lecture and one clinic each week in these cities by Dr. Wayne A. Rupe of St. Louis. A course began Sept. 1, 1926, in northeastern Oklahoma, clinics and lectures being held in Tulsa, Miami, Vinita, Bristow and Pawhuska. The success of this work, the university officials say, has exceeded all expectations, and probably by July, 1927, it will be possible to have a course within reach of every practicing physician in the state. Other subjects will be offered, provided able instructors can be secured. The expansion of this work in the future depends largely on the appropriation of funds to help bear administrative expense, now being carried by the extension division of the university.

OREGON

Physicians Organize Exchange to Reduce Advancing Rates.—Members of the city and county medical society at Portland opened a physicians' telephone exchange, January 1, in the Medical Arts Building, which will be under the direct control of a medical committee. Physicians were notified recently by the old exchange that the rates would be advanced, February 1, from $4.75 to $10 per month. The committee of physicians, appointed to investigate, became the board of trustees of the new exchange, which will charge $3 a month. Within nine days after invitations were mailed to physicians to join in the new organization, 200 physicians pledged membership. Drs. Adalbert G. Bettman, John Earl Else and Clarence J. McCusker are the trustees of the new organization.

New Children's Hospital at Medical School.—A seventy-five bed general hospital for children on the campus of the University of Oregon Medical School has been opened. It is of most modern fire-proof construction and equipment and will provide for sick and disabled children of the state; it will be a teaching hospital for the departments of pediatrics and surgery, and has facilities to carry on research in pediatrics. The staff, comprising forty-three physicians, is appointed by the University of Oregon Medical School. There is also a residency and two internships. The hospital has been named the Doernbecher Memorial Hospital for Children of the University of Oregon Medical School in memory of the late Frank S. Doernbecher, whose son and daughter gave $200,000 for its construction and equipment. Additional gifts amounting to about $135,000 were received from various sources. The Portland Rotary Club gave $25,000; the Elks of the state, $18,000; the Junior League of Portland, about $6,000, and the American Legion of the State of Oregon provided $26,000 to maintain the hospital until legislative appropriations could be secured. The building is situated on the campus of the medical school originally donated to the state by the Union Pacific Railroad.



PENNSYLVANIA

Society News.—Dr. William P. Brown, Philadelphia, of the Pennsylvania Tuberculosis Society, addressed the Luzerne County Medical Society, December 15, on "Tuberculosis from the Viewpoint of the General Practitioner."

Hospital News.—The new children's ward of the Harrisburg Hospital, Harrisburg, is a memorial to Dr. Maud Conyers Exley.——The state department of health has contracted for the construction of the first unit of the Pennsylvania State Hospital for Crippled Children at Elizabethtown.

Campaign for Funds for Medical Center.—The plan to create a medical center in Pittsburgh by relocating in a single structure adjacent to the University of Pittsburgh the Presbyterian and Eye and Ear hospitals will enter the public phase, January 9, when efforts will be made in an intensive campaign to raise $6,000,000 for this purpose. The special gifts group of the organization working toward this end announced recently that $500,000 in advanced gifts have been received.

Philadelphia

University News.—The senior class of the medical school presented a portrait of the late Dr. Allen J. Smith to the University of Pennsylvania, at a meeting in the Medical Laboratory, December 17; Dr. Smith was at one time dean of the medical school.

Health Clinic for Women.—The Woman's Medical College of Pennsylvania opened a health clinic for women, Dec. 10, 1926, under the direction of the department of preventive medicine. Dr. Edith V. H. Matzke will be in charge of the clinic, the purpose of which is to foster positive health for

women, to discover incipient illness, and to direct suitable cases to various special clinics. For the present, the clinic will be held every Friday afternoon.

Dr. Dercum Honored. — A hundred physicians, associates and friends gave a dinner, Dec. 11, 1926, at the Penn Athletic Club in honor of Dr. Francis X. Dercum, for many years professor of nervous diseases of Jefferson Medical College. This was in the nature of a delayed birthday celebration by friends who were unable to congratulate the guest of honor last summer on reaching his seventieth birthday. Dr. Charles W. Burr was toastmaster and Dr. Theodore H. Weisenburg, chairman of the committee in charge of arrangements.

SOUTH CAROLINA

Society News.—Dr. Irving S. Barksdale, health commissioner of Greenville, addressed the Oconee County Medical Society, Nov. 12, 1926, on "Toxin-Antitoxin Immunization in the Prevention of Diphtheria."——Dr. James R. Desportes, Fort Mill, addressed the York County Medical Society, Nov. 10, 1926, on "Early Signs of Pregnancy."——Dr. George H. Bunch addressed the Newberry County Medical Society, Nov. 21, 1926, on "Significance of Bleeding at the Menopause," and Dr. James H. McIntosh on "Medical Ethics."——The guest of honor of the Spartanburg County Medical Society, Nov. 2, 1926, was Dr. Andrew J. Crowell, president of the Tri-State Medical Association; on the following day, medical, surgical and pediatric clinics were held at the Spartanburg General Hospital. Dr. S. T. D. Lancaster is president of the society.——At the Third District Medical Association meeting at the South Carolina State Training School, Clinton, Dec. 2, 1926, Dr. John B. Setzler, Newberry, gave the "Sims Memorial Address"; Dr. Thomas L. W. Bailey, Clinton, among others, read a paper on "Purpura Hemorrhagica in Children."

VERMONT

Dr. Albee Resigns Professorship. — According to *Science*, Dr. Fred H. Albee, New York, has resigned the chair of orthopedic surgery at the University of Vermont School of Medicine, Burlington, and Dr. Brainerd H. Whitbeck, New York, has been appointed as his successor.

Mental Survey of State.—At the request of the governor of Vermont, the National Committee for Mental Hygiene began, in November, a survey of mental deficiency conditions in the state, which will embrace (1) the study of the facilities and resources of the state school for the feebleminded at Brandon and of the state industrial school at Vergennes, and (2) a survey of the intelligence of school children taken from a series of representative communities. The information obtained in this survey will supplement the eugenics survey of certain families in the state which is being made by Henry F. Perkins of the state university. The mental deficiency survey will be directed by Dr. Herbert E. Chamberlain, who made a similar survey for the committee in Texas; Dr. Chamberlain recently returned from a year's study abroad.

VIRGINIA

Decrease in Death Rate.—The death rate in 1925 for Virginia was 11.20 per thousand of population, as compared with 12.40 in 1924. The decrease was partly due to decreases in the rates for pneumonia, whooping cough and measles. There were increases in the rates for influenza, typhoid, nephritis and enteritis.

Personal.—Dr. Beverley R. Kennon, Norfolk, was elected president of the Seaboard Medical Association at the thirty-first annual meeting at New Berne, N. C., December 7, and Dr. Clarence P. Jones, Newport News, secretary. The next annual meeting will be in Norfolk.——Dr. James A. Shield, a recent graduate of the Medical College of Virginia, has been elected to serve an internship in the American Hospital of Paris, France.

WASHINGTON

Portrait Presented.—A portrait of Dr. George B. McCulloch, Seattle, painted by Howard Chandler Christy, was recently presented to the Children's Orthopedic Hospital by Dr. McCulloch's friends in recognition of his twenty years' service to the hospital.

Personal.—Dr. Arvid E. Anderson, Hoquiam, was guest of honor at a duck feast recently given by members of the Hoquiam Medical Society.——Dr. John Reid Morrison, Bellingham, has been elected president of the Bellingham Physicians and Surgeons Club.——Dr. Joseph Riviere, Paris, France, recently visited Seattle.

Basic Science Bill to Be Reintroduced.—The Basic Science Bill which recently lacked only three votes of passing over the governor's veto will be reintroduced in the Senate in the early days of the coming session. The bill is widely endorsed in the state by professional organizations and women's clubs; it aims to provide an examination for all applicants of the healing arts in the fundamental branches of medical science.

WEST VIRGINIA

Typhoid Outbreak at Grafton.—According to an Associated Press dispatch, Dec. 23, 1926, seventy-five cases of typhoid fever were under treatment in Grafton, a city of about 9,000 population, and nine deaths due to typhoid had occurred.

WISCONSIN

Secretaries' Conference.—The secretaries of all county medical societies of Wisconsin will meet, January 8, in Milwaukee, pursuant to the action of the house of delegates. The state medical society will pay half of the expense of the trip at the time of the meeting. The council will hold its annual meeting, January 9. The program announced comprises topics concerning organization work, discussed by various state officers, conferences and luncheons.

Society News. — Drs. Frank W. Whitmore and Carl C. Chatterton, both of St. Paul, addressed the Barron-Polk-Washburn-Sawyer-Burnett County Medical Society at Barron, Nov. 23, 1926, on "Injuries to the Skull and Vertebra" and "Osteomyelitis," respectively, and Dr. Jake A. Riegel, St. Croix Falls, on "Cerebrospinal Fever."——The Chippewa County Medical Society debated the milk situation in Chippewa Falls at its November meeting, passing resolutions to be presented through the health officer to the city council recommending that all milk sold in the city be pasteurized and be from tuberculin tested cows.——Dr. Russell M. Wilder, Mayo Clinic, Rochester, held a clinic on diabetes before the Eau Claire and associated county medical societies in November.——Dr. Frederick J. Gaenslen, Milwaukee, addressed the Fond Du Lac County Medical Society, Dec. 9, 1926, and conducted a clinic under the auspices of the county committee of the Wisconsin Association for the Disabled.——Dr. Arthur E. Hertzler, Kansas City, held a diagnostic goiter clinic at St. Elizabeth's Hospital, Appleton, Nov. 16, 1926, and addressed the Outagamie County Medical Society in the evening on "Goiter."——Dr. William H. von Lackum, Rochester, Minn., addressed the Rock County Medical Society, recently, on "Systemic Manifestations of the Infected Prostate," and Dr. Victor D. Lespinasse, Chicago, on "Relation of Urology to General Medicine."——Dr. E. A. MacCormack, Peru, South America, addressed the Trempealeau-Jackson-Buffalo County Medical Society, Nov. 10, 1926, at Galesville, on "Infant Mortality in Peru."——Dr. Henry V. Ogden has presented the Milwaukee Academy of Medicine with three autographed letters from Sir William Osler.——The Wisconsin Urological Society has been organized and Dr. Ira R. Sisk, Madison, elected president, and Dr. Hartwick M. Stang, Eau Claire, secretary. The society will meet twice a year, the fall meeting being at the Wisconsin General Hospital, Madison, where the organization meeting was held.——Dr. Louis M. Warfield addressed the Milwaukee Academy of Medicine, Dec. 13, 1926, on "Coronary Thrombosis," and Dr. Frederick J. Gaenslen on "Osteomyelitis."

CANADA

Personal.—Drs. Lewis W. Johnstone, Sydney Mines, and John A. MacDonald, St. Peters, Nova Scotia, were returned to the dominion parliament at the recent federal elections.——Dr. Albert G. Nicholls has resigned, according to the *Canadian Medical Association Journal*, as professor of pathology at Dalhousie University and pathologist to the Victoria General Hospital.

University News.—Dr. Charles H. Best, of the faculty of medicine of the University of Toronto, has been working in the laboratory of the National Research Council, England, during the last year. The laboratories of the Banting and Best Chair of Medical Research have been moved from the medical building to the pathologic department. The annual fee for students of medicine at the University of Toronto will be raised to $200 except for the first year, which remains at $150, beginning with the session 1927-1928. The faculty of medicine has awarded the Charles Mickle Fellowship for 1926-1927 to Dr. and Mrs. George F. Dick, Chicago.

Society News. — The Vancouver Medical Association announces that Dr. William F. MacKay addressed the society, December 7, on "Diagnosis and Significance of Referred

Pain in Disorders of Chest and Abdomen"; and Dr. George A. Greaves will speak, January 4, on "Physiotherapy in Orthopedic Conditions." There will be a symposium, April 5, on "Treatment of the Poor Risk Patient."——The Vancouver Medical Association gave a dinner, September 27, for Dr. Norman M. Keith, Mayo Clinic, Rochester, Minn.; about eighty-five members of the society were present.——At the annual meeting of the Saskatchewan Medical Association, Dr. Robert R. Stirrett, Swift Current, was elected president, and Dr. Alexander MacG. Young, Saskatoon, secretary.——Francis E. Lloyd, McGill University, Montreal, was elected president of the American Society of Plant Physiologists for the ensuing year.——Dr. Donald C. Hart, Regina, has been elected president of the Regina and District Medical Society for the ensuing year, and Dr. Richard M. McAlister, secretary.——At the recent meeting of the Manitoba Medical Association, Dr. John D. McQueen, Winnipeg, was elected president.

GENERAL

"Mr. Fox" in Custody in New Orleans.—The following telegram was received from New Orleans, Dec. 24, 1926:

Have George Fox in Custody Here. Admits He is Not Graduate of Rush Nor Practicing Physician. Being Questioned at Detective Bureau. Advise Police Headquarters Here If He is Wanted Elsewhere.

Another Four Weeks of Automobile Fatalities.—During the four weeks ending Dec. 4, 1926, automobile accidents caused 634 deaths in seventy-eight large cities in the United States, as compared with 625 deaths during the corresponding period in 1925. Two cities reported no deaths, Kansas City, Kan., and Utica, N. Y. The number of deaths for the four weeks ending Nov. 6, 1926, was 676.

Society News.—At the Cleveland meeting of the Interstate Post-graduate Assembly of North America, Dr. Carl L. Larsen, St. Paul, was made president; Dr. Lewellys F. Barker, Baltimore, president elect; Dr. William B. Peck, Freeport, Ill., was reelected managing director, and Dr. Edwin Henes, Jr., Milwaukee, executive secretary. The society will meet in Kansas City in October, 1927, and will conduct another tour of clinics in Europe beginning May 21, 1927.

Fellowships in Psychiatry.—The Rockefeller Foundation has renewed, for a second period of three years, its appropriation of $40,000 to the National Committee for Mental Hygiene for the training of fellows in extramural psychiatry and psychiatric social work. These fellowships are open to physicians under 35 years of age, graduates of a class A medical school, who have had at least one year's training in a mental hospital. Applications are now being received by the committee, and blank forms may be had by addressing the director, Dr. Frankwood E. Williams, 370 Seventh Avenue, New York.

Report of Columbia Institution for Deaf.—The sixty-ninth annual report of the Columbia Institution for the Deaf to the Secretary of the Interior shows that the total expense for the fiscal year was $157,070. There were admitted to the institution during the year thirty-four males and twenty-one females, and there were under instruction in the advanced departments, known as Gallaudet College, 127 persons from forty states, Canada, and the District of Columbia, an increase of five over the previous year. In the primary and grammar department, known as Kendall School, there were fifty-eight pupils, a gain of seven over the previous year. An imperative need exists, the report states, for new buildings to provide for increased attendance.

One Million Deaths.—During 1925, there were 1,219,091 deaths in the registration area of continental United States, representing a death rate of 11.8 per thousand of population, the same as for the year 1924. The principal decreases in death rates in 1925 were from measles from 9 to 2 per hundred thousand of population; pneumonia from 98 to 94, and tuberculosis from 90 to 87. The increases during the year, the U. S. Department of Commerce announces, were from influenza from 20 to 30 per hundred thousand of population; diseases of the heart from 178 to 186; nephritis from 90 to 96, and diarrhea and enteritis, under 2 years, from 28 to 32. The death registration area comprised forty states, the District of Columbia and twenty-four cities in nonregistration states, or 89.4 per cent of the estimated population of the United States.

Segregation of Regulatory Work of Food and Drugs Act.—The secretary of the U. S. Department of Agriculture has presented to Congress in the budget for the fiscal year 1928 a recommendation to place the regulatory work involved in the enforcement of the federal Food and Drugs Act, the Tea Inspection Act, the Insecticide and Fungicide Act and the Naval Stores Act in another administrative unit; also to consolidate in one unit the research work in the department of agriculture on soils and fertilizers and certain chemical work on agricultural products at present conducted by the bureau of chemistry, soils and plant industry. The proposal is intended to separate work involving scientific research from the work of law enforcement and to bring together under one head closely related work. The plan involves no change in the methods of enforcing the federal Food and Drugs Act and other acts involved, which in Secretary Jardine's opinion are now being enforced in an efficient manner.

Contest—Prize—Disabilities in Drafted Men.—A competition open to all medical officers or contract surgeons of the U. S. army, navy, public health service, organized militia, volunteers and reserves, and to commissioned medical officers of foreign military services, is announced by the Association of Military Surgeons of the United States. Through the generosity of Mr. Henry S. Wellcome, a cash prize of $500 and a gold medal has been provided for the best essay on this subject: "In Consideration of the Physical Disabilities Found in Drafted Men and Volunteers of the World War, What Practical Hygienic Measures are Advisable for School Children in the United States?" The competition will include essays, investigations, discoveries, reports of research or laboratory work, and they must be forwarded to the secretary of the association not later than Sept. 1, 1927, accompanied by a sealed envelop containing the name and address of the competitor, but not signed except with a non de plume or device assumed by the writer. Further information may be found in the *Military Surgeon*, December, 1926.

Bills Concerning Medicinal Liquor.—Representative Green of Iowa, chairman of the ways and means committee, has introduced a bill into the House proposed by the treasury department, which would create a private corporation with a capitalization of about $110,000,000 and which would be under full government control for the manufacture, sale and distribution of medicinal whisky. The bill proposes to sell to the public a maximum of about $35,000,000 of gold notes of the corporation and, in case the public does not respond, to grant the treasury authority to invest in these notes. When any borrowed capital is repaid, the corporation will be owned by private capital. The proposed corporation will be permitted to condemn and purchase all whisky stocks, to manufacture whisky and will be the sole seller of whisky for medicinal purposes. At first, the secretary of the treasury will name the directors of the corporation, but that right will be relinquished when the stock becomes privately owned.——Senator Hawes has introduced a bill into the Senate which would remove the restrictions of the Volstead law as to the use of liquor for medicinal purposes. Senator Hawes' bill would amend the Volstead law by providing that nothing in the law shall prohibit or limit the manufacture, sale or transportation of intoxicating liquors for medicinal purposes, and that nothing in the act shall prohibit or limit the professional privileges of graduated, licensed physicians from exercising their scientific judgment in prescribing alcoholic beverages for medicinal purposes. In his statement at the time the bill was introduced, Senator Hawes drew attention to the fact that the original intent of the Eighteenth Amendment was never intended to place any restriction on liquors used for medicinal purposes and did not contain such restriction or prohibition.

FOREIGN

Diphtheria in Queensland.—The state schools in several parts of Queensland, Australia, were temporarily closed early in November because of the occurrence of diphtheria. A general survey of Queensland to discover carriers was made by the commonweath and state authorities. The situation in some communities was such as to be considered epidemic.

New South African Medical Journal.—In the reorganization whereby the medical associations of South Africa unite to become a unit of the British Medical Association, the federal council decided to inaugurate an official journal to be named *Journal of the Medical Association of South Africa (B. M. A.)*, from Jan. 1, 1927. The *South African Medical Record* and the medical agency department of the Record Publishing company will be taken over by the council, the former being incorporated in the new journal. The joint editors will be Drs. Darley-Hartley and C. L. Leipoldt. At the recent meetings of the federal council in Pretoria, Dr. A. J. Orenstein was elected president for the triennial period, and Dr. Alice Cox, honorary secretary.

Government Services

Annual Report of Veterans' Bureau

The annual report of the director of the U. S. Veterans' Bureau indicates that more than 500,000 beneficiaries of the bureau have been admitted to government hospitals since September, 1919. The largest number of annual admissions was 134,354 during the fiscal year 1922; there was a material decrease in admissions during the two following years, then a 20 per cent increase during 1925, as a result of the liberal provisions of the World War Veterans Act of 1924 (THE JOURNAL, December 18, p. 2104). The total hospital load of the bureau, June 30, 1926, was 24,915 cases, which was within 3,200 of the total number of patients in all hospitals just prior to the passage of the act of 1924. They were classified as: neuropsychiatric, 12,220; tuberculosis, 7,308; general medical and surgical, 5,387. Twenty per cent of the total number of these patients were receiving hospitalization for nonservice connected disabilities. There were 177 females, or 27 per cent fewer than on the last day of the previous fiscal year. The colored patients numbered 1,663 as compared with 1,791 at the end of 1925. The number of operations performed increased 23 per cent over the number performed during the previous year.

Of the total number of patients discharged from all hospitals (70,898), 55 per cent were improved to some extent by hospitalization. Among the 19,131 tuberculous patients discharged, the disease had been arrested in 650, and apparently arrested in 433; in 1,524 others the lesion had become stationary or retrogressive. The number of neurosyphiatric patients discharged during the year did not equal the number admitted, and this unbalanced condition has existed for several years, resulting in an accumulative load which includes many patients afflicted with a chronic deteriorating type of insanity. There were 1,043 psychotic patients discharged improved, among whom were 163 manic-depressive cases, and eighty-two with general paralysis, the latter having been the results of treatment by inoculation with malaria. One of the most significant accomplishments effected during the year, the report states, was the reduction in discharges after hospitalization for observation, special examination and adjunct treatment. These cases dropped from 18,684 in 1925 to 11,937 in 1926. The total deaths in all hospitals was 3,412. There were 556 more deaths from tuberculosis than from the total of all other diseases and conditions.

Applicants Exceed Vacancies in Navy During 1926

In his annual report to the secretary of the navy, the surgeon general states that about 250 candidates were authorized to appear for examination for appointment in the medical corps in January, 1926, and that sixty of them were found qualified for appointment. Owing to the fact, however, that the appropriated strength of the medical corps was 819, only forty-five of the applicants found qualified for appointment were commissioned. In previous years, the surgeon general experienced difficulty in securing sufficient applicants of desirable quality for the corps. The deficiency seems to have been overcome by the practice of admitting to navy hospitals a number of graduates of class A medical schools for their intern year. The unceasing growth of specialization has made the need for special training in the navy more urgent and at the same time has made it more difficult to withdraw naval officers from service for purposes of attending postgraduate courses. During the fiscal year 1926, however, 107 medical officers took special courses of instruction. The demand for officers in the service is most urgent where medical specialization is most evident. The demands vary from those of an industrial employer to serving native populations in our island possessions, aviation, submarine service, chemical defense, field service with troops, recruiting, military organization in peace time and other activities which are often such as to require medical officers in number out of the usual proportion to the work performed. Surgeon General Stitt estimates that a strength of 950 in the medical corps of the navy is necessary to carry out the work. With the number of medical officers available, he has endeavored to make the best shift possible in the requests for additional officers, but he considers that some relief for the situation cannot long be deferred. The enlisted strength of the navy medical department was 3,638 men at the close of the fiscal year 1926.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 4, 1926.

Epidemic Encephalitis: Report on the Sheffield Outbreak

The medical research council has published a report on "The Sheffield Outbreak of Epidemic Encephalitis in 1924." The disease has been intensively studied by a special committee, and the conclusions reached are of interest and importance. Professor Wynne, who has dealt with the epidemiology, urges that statistical estimates of the incidence and fatality be accepted with reservation owing to the occurrence of unrecognized, mild and abortive cases. The evidence already available as to increased susceptibility to infection in males and increased liability to death in females is confirmed by the Sheffield figures, as is also the idea that there is increased liability to infection in males between the ages of 15 and 30 years. Evidence has not been obtained that the disease is in any way connected with social conditions, such as overcrowding, poverty or insanitary conditions, nor has any connection been established between the disease and topographic conditions, water supply, milk supply or food supply. Finally, "there is not any reliable evidence that the disease is spread by direct contact, nor do any data exist for computing an incubation period if infection does take place." The moral effects noted after the disease are not confined to children and young folk. In one case, a man, aged 56, spends all his time trying to annoy and irritate the members of his household, though previously a kindly and loving husband. A woman of 40 has changed from a generous and cheerful woman to a stingy and silent one. Children, however, show the most marked changes. A large proportion of children attacked become altered to some extent. Examples are given in the report of what is called the "Apache type" of moral change.

Free Wireless Licenses for the Blind

Leave to bring in the wireless telegraphy blind persons' facilities bill has been unanimously given in the house of commons. Its object is to provide blind persons with free licenses for broadcasting receiving apparatus. The government broadcasting committee, which reported in the spring of this year, endorsed the proposal that blind persons should have these free licenses. A second clause in the bill defines "blind persons." Only a small number of persons in the country fall into that category—not more than from 25,000 to 30,000, including some 1,500 ex-service men. The bill has the approval of many institutions for the blind throughout the country.

National Institute of Industrial Psychology

Under the auspices of the National Institute of Industrial Psychology, which exists for the application of psychology and physiology in industry and commerce, Prof. Cyril Burt, psychologist to the London County Council, delivered an important address on "The Vocational Adviser and the Young Delinquent." He said that most hardened criminals begin their career during childhood. Many inquiries into the causes of delinquency have now been carried out. They show that we cannot longer assume with Lombroso that the habitual criminal is a born offender, inheriting a propensity to crime which can never be rooted out. The factors at work are numerous and complex; they are partly environmental and partly hereditary; and they differ in different cases. When the young criminals are brought to the psychologist for examination, it is found that a large percentage of those who are of employable age are in employments that are not suited to

their capacities and interests. If, therefore, a youth or girl of employable age is placed on probation, one of the most important tasks is to find him congenial work which will make him a satisfied self-respecting person instead of a restless malcontent with a grudge against society. Experience has shown that, once a safe, suitable and satisfying occupation has been found for them, such persons quickly drop their lawless habits. Statistics reveal a great increase of crime about the age of adolescence; that is, soon after the time the child leaves school for industry. It is then that a criminal career, like any other career, is most apt to be chosen. To find a fitting occupation from the first is one of the surest preventives against crime. Much valuable work has already been done in this direction by the vocational experiments of the National Institute of Industrial Psychology.

Are We Degenerating?

The Royal College of Physicians adopted the unusual course of appointing a clergyman to deliver the Lloyd Roberts lecture. The lecturer was Dean Inge of St. Paul's Cathedral. The dean is distinguished as the most outspoken and scientific critic of our social life. He has completely mastered the latest biologic teaching, which he applies with relentless logic to social problems, painting pictures so black that he has earned the epithet of "the gloomy dean." This lecture is described in the press as his gloomiest address for years. His subject was Racial Degeneration. He selected the negative rather than the positive side of eugenics, not because he had a natural tendency to dwell on the dark side of the changes which were always going on in the human race, but because at present the negative side was more important than the positive side. Points made by him were as follows: Natural selection has almost ceased to operate in highly cizilized states. If we do not provide some rational substitute for it, Nature will punish us for interfering with her methods of social hygiene without providing anything to take their place. Perhaps Nature has expended nearly all her ingenuity. There have not been new classes since mammals and birds appeared. Even social evolution comes to an end. State socialism cannot go farther than in the suffragette type of government in the beehive, a government run by maiden aunts. There has been a gradual lowering of the perfection of our sense organs. Our teeth have decreased in size and strength. Our jaws are becoming too small for our teeth, our eyesight has deteriorated. Any physical changes, other than degenerate, are inhibited by the use of tools. Having clothing and weapons, we do not need fur or claw. The day may come when we shall not be able to walk or to write. We shall use the motor car for the first and the typewriter for the second. "You press the button, we do the rest." Nature may say, "Very well, I will leave you just enough intelligence to press the button." Former civilizations disappeared because the barbarians broke through the fence. It is unlikely, but not impossible, that such a disaster may again occur. The Russian nation has been almost completely decapitated. A similar world-wide revolution, such as might follow another great war, would end our civilization and plunge the world into another dark age which might last for centuries. It might then be found that the present population was less inventive and lower in intelligence than the Europeans of the Renaissance. Industrial civilization skims off the cream in each generation and then throws much of it away. Unlimited competition exhausts the vitality, physical and mental. In all the higher human activities, competition is not the chief motive force, and in a nation organized solely for big business, the higher activities languish. A millionaire is not the supreme product of human progress. There is a danger that human beings may become parasitic on the machine they have made for their use. Machines have ousted workers from natural human occupation. Apart from the machine they would be helpless even in the presence of abundant material, and would either perish or exist miserably as savages. Nations do not grow old like individuals, but they do die of disease when the burden of civilization becomes too heavy for the shoulders that have to bear it. That is why the present situation is so serious. The entries in "Who's Who" show that the children average only two in each entry. That means the families of these moderately successful men are not keeping up their numbers. The classes which are best equipped intellectually and physically are passing into relative and even absolute decline. One might imagine in reading sometimes about the Pilgrim Fathers that the *Mayflower* was the size of the *Olympic*. Really it was a very small vessel, and the mortality among those who sailed in it was so great that only thirty-three of them founded families. Nearly half the distinguished men of America were descended from that thirty-three. We must hope that somehow social antitoxins will be developed. We are not yet a degenerate people. We are a race to which any man might be proud to belong. But our society is not at present in a healthy condition, and unless we take the problem of racial decay in hand probably it may be too late. The really pressing problems are very different from those in which our politicians interest themselves. The dean thought that this is a subject on which physicians should speak out. "Modern man may deny that he has a soul, but he is acutely conscious that he has a body, and therefore he has a great respect for physicians."

PARIS

(From Our Regular Correspondent)

Dec. 1, 1926.

Improvement in the Treatment of Epidemic Encephalitis and Parkinson's Disease

By means of intravenous injections of sodium salicylate, Carnot and Blamoutier have secured remarkable results in the acute period of epidemic encephalitis. The injections sometimes produce painful shock, although never causing serious accidents. Such injections affect the inner tunic of the vein and cause the vein to become blocked. Dr. René Bénard's simple modification, recently introduced, consists in administering sodium salicylate in a dextrose solution, following which neither shock nor reactions on the wall of the vein are observed. One of his assistants was able to apply sixty-three injections of this solution in the same vein. A slender needle must be employed, and, in puncturing the wall, laceration must be avoided. In introducing the needle, care must be taken to prevent the solution from adhering to its surface. It is sufficient to immerse the needle for a few seconds in the water in which it was sterilized. The solution used by Bénard contains 10 Gm. of pure, recrystallized salicylate and 10 Gm. of dextrose to 100 Gm. of water. It is distributed in ampules containing 20 cc. and is sterilized by being allowed to remain fifteen minutes in the autoclave, without pressure. Untoward effects have not been observed; the injection is not at all painful. These injections, used first in acute articular rheumatism, have given almost immediate and constant results in the mild and moderate types. Applying them to epidemic encephalitis, after the Carnot method, Bénard had remarkable success. Dosage varies with the condition of the patient.

Race in Relation to Cancer Mortality in France

Addressing the Ecole d'anthropologie recently, Professor Pittard discussed the question of the relation of race to cancer mortality. He postulates the presence in France of three human types which are reasonably distinct in their ethnical characters and which strengthen these characters by community marriages. These three types are: *Homo europoeus*

of the northern regions, *Homo meridionalis* of the South, and a middle type represented by the inhabitants of the Cévennes Mountains. In studying the statistics of cancer mortality in the various French departments and taking account of the human type that predominates in each, he reached the following conclusions: In the departments of the North, the Northwest and the East, where *Homo europoeus* is in the majority, the cancer mortality is 30.63 per thousand; in the regions in which *Homo meridionalis* predominates, the cancer mortality is less than half as high. The type found in the Cévennes furnishes a figure that is slightly higher than that of the southern type. The differentiation between these figures is so great that they merit attention, even though one objects that they were perhaps not collected with the same care in all the departments. M. Pittard, however, is convinced that these figures and his conclusions have a general application. The countries inhabited entirely by *Homo europoeus*, such as Belgium and the Netherlands, furnish the same percentage as does the same type in France, and he thinks that if these researches were continued in the countries that are made up of a mixture of many races, as the United States, the results reached would not be essentially different.

A Medical Play Written by Two Physicians

A comedy was recently given at the Théâtre de la Renaissance the authors of which are Dr. Henri de Rothschild, who writes under the pen name of André Pascal, which he has signed to several earlier plays, and Prof. Pierre Delbet. Delbet is one of the well known surgeons of the Faculté de Paris, and has produced a number of ceramics that have been successfully exhibited at expositions. Dr. Henri de Rothschild, on the other hand, has written a dozen plays. In their common production, "La Vocation," a woman physician becomes so absorbed in her profession that she neglects her home, husband and young daughter. The husband, thus neglected, contracts an alliance with another woman, who one evening suffers a sudden attack of pulmonary edema. A physician selected by chance from the police list was summoned, and it is the wife who arrives at the bedside of the patient, where she finds also her husband. She performs her professional duties without weakening and saves the patient. On returning home and facing her husband, she demands a divorce. The husband does not wish to be separated from his daughter, and the child wishes to remain with her father, as her mother has never given her much attention. Therefore the wife, to take vengeance on her husband, tells him that the child is not his own daughter. The husband falls into a state of depression. In vain his wife, who has, in turn, become bereft of her senses, tells him that she merely concocted the story to make him suffer. He finally takes his own life with a revolver. The play has awakened many comments, especially among women physicians.

The Prophylactic Institute

A private institute, supported by the ministry and the city of Paris and destined to aid in the crusade against venereal disease, has been recently officially inaugurated. It is a large four-story building situated at the corner of rue d'Assas and rue de Vaugirard, and is under the direction of Dr. Arthur Vernes, who has twenty-four medical assistants. The equipment is of the best. In addition to numerous rooms for the treatment of outpatients there are rooms with beds for lumbar puncture and intravenous injections that require that the patients shall rest after the application. There are, also, well equipped laboratories for bacteriologic and serologic work. Each patient has a card on which is recorded the progress of the treatment, which he must pursue in regular periods. Twenty thousand patients have already been treated in this institute, and it is planned to establish branches in the large provincial cities. Such a well organized institution attracts many patients who hesitate to apply for treatment in crowded hospitals where there is almost painful promiscuity and where examinations and the treatments are too often carried out by young medical students who have not had sufficient training.

The Social Insurance Bill

In connection with the recent discussion before parliament of the annual budget, the socialists insisted vigorously that the social insurance bill, which was accepted by the chamber of deputies several years ago, and which is now before the senate, shall come up for discussion. The minister of health, M. André Fallières, stated in his reply that new calculations had become necessary in order to ascertain exactly how much of a burden on the budget such a law would entail, since the estimates prepared thus far vary greatly, ranging from one to eight billion francs. Such a law will deal a heavy blow to the vast majority of practitioners and will create organizations that will keep them under tutelage and will impose on them a greatly reduced fee schedule. The outcome is not difficult to foresee when the present situation in Alsace-Lorraine is carefully studied, for in that region the form of social insurance that was introduced, before 1914, by the German régime, is still in force. Furthermore, the nonsocialists in parliament affirm that the situation of the laboring class will not be essentially different from what it is under the operation of the existing mutual aid societies, which are admirably organized and to which workmen make a small contribution. When the central government shall take over the work of the mutual aid societies, the workman will cease to pay anything and will force his employer to make his contributions for him, instead of deducting them from his salary. The employer will increase the price of his merchandise, and the cost of living will rise. The result will be that the public will pay, twice over, the cost of this great reform—first, through the increase in the cost of living, and, secondly, through the new taxes that the government will be obliged to impose. The reform will cost, therefore, much more than eight billion francs—possibly twice that amount. But the socialists will have scored a victory by substituting for the liberal, beneficent and inexpensive policies of the mutual aid societies the compulsory and ruinous state social system.

MADRID

(From Our Regular Correspondent)

Nov. 19, 1926.

Spanish-American Ophthalmologic Meeting

Salamanca, the old Spanish university, was selected by the Hispano-American Ophthalmologic Society for its fourteenth meeting, September 17-20. In addition to many Spanish ophthalmologists, Professor Demaria of Buenos Aires and Professor Schaff of Strasbourg attended. One of the most interesting as well as pathetic papers was that of Dr. Mérida Nicolich on "Traumatic Pulsatile Exophthalmos with Neuroparalytic Keratitis." The audience was moved by the matter of fact description, as Dr. Mérida was describing his own case. His affliction is the result of a bullet entering the left temporal region. Mérida Nicolich also submitted another paper on "Medicosocial Aspects of Blindness in Spain." He described conditions in other countries, especially in England, where adequate training may enable the blind even to become members of the cabinet. In Spain, according to the statistics Mérida has collected, there are 36,000 blind people. With the rare exceptions of members of well-to-do families, these people must lead a sad life, hardly relieved by public charity. The authorities have done but little on their behalf and sporadic efforts have leaned toward the opening of homes rather than training centers which may fit them for life and for work. Dr. Mérida mentioned his own enterprise in

Málaga, where several such centers already exist and are supported by foreign residents. In conclusion, he urged the Hispano-American Ophthalmologic Society to study the question and render its aid in order that the authorities and the people may properly care for the blind.

Professor Márquez of Madrid spoke on "El Greco's Alleged Astigmatism." In a series of slides he showed parts of the work of this famous painter. Márquez does not attribute to astigmatism his elongated and thin figures. He does not believe that an unaided astigmatic patient sees differently from normal people, since the very defect induces a certain compensation.

The association adopted these resolutions: To request the government to fill by competitive examination all vacant chairs of ophthalmology; to intensify the present campaign against trachoma, and to take the lead in pushing measures intended to improve the care and training of blind people in Spain.

A Medical and Social Problem

Dr. Goyanes described to the National Academy of Medicine his experience as a member of the visiting board of Las Hurdes. The problem in this region embracing 123,500 acres is essentially medical. Nearly all the inhabitants are sick. Before the present trusteeship was organized, the district was without physicians. Schools also were lacking. The most prevalent diseases were malaria, goiter and myxedema. Roads as well as carriages and cattle were unknown. Conditions have improved enormously in the four years that the present system has been in operation. Much still remains to be done, especially because of local poverty and the covetousness of the landowners. Hoyos' recent studies show that the alleged racial inferiority emphasized by Lope de Vega and the old poets is without basis as most of Las Hurdes people are of pure Salamanca stock. The present inhabitants just reflect the effects of endemic diseases, as well as alcoholism and syphilis, and especially what Marañón has called acute hunger disease, as some people go without eating for two or three days, and some have partaken only of lettuce and potatoes for a long time. In some towns every person is suffering from malaria, although the three present physicians are successfully attacking this problem. Goiter and myxedema are almost universal. Of every twenty recruits, only one or two reach the proper height, but growth continues afterward, as is often the case with cretins. Men 20 years old show barely a 12 year old mental ability. At Las Hurdes they have begun giving iodized table salt, as has been done in Asturias since time immemorial.

The physicians belonging to the visiting board have failed to see so far any case of vitamin deficiency, scurvy, purpura, pellagra or beriberi. One of the worst problems to meet was that created by the *pilos* or foundlings taken to board from neighboring provinces. Many local women walked 20 or 30 miles in order to get one of these boarders, as the 15 pesetas (about $2.25) a month paid by the authorities was their only income. As a result, these mothers neglected their own children. Furthermore, the authorities were often far behind in paying their dues. The imported children, while keeping up the level of population, also brought along hereditary and contagious diseases.

Cajal's Staining Method in Argentina

Dr. Segarra, one of Cajal's pupils, described before the National Academy of Medicine what he has accomplished in Argentina with the colloidal silver staining method. A large collection of specimens was passed around to bear out his contention. Argentine fauna proved advantageous for this study because of their many small vertebrates. Their minute nervous centers fit easily inside the slide. Cajal's impregnation divides the specimen into three zones: peripheral, dark; intermediate, the one most useful, tobacco tint; and a third one, yellow, as the silver does not reach it properly. The dark zone constituted the worst difficulty as it meant discarding a large part of the preparation. After many years of trials, Segarra has perfected a method that permits using the whole specimen. For this purpose he resorted to the protective action of colloids. After fixation according to Cajal's method, the specimens are inserted in animal membranes or colloid filters simultaneously with a from 6 to 8 per cent gelatin aqueous solution. The reducing agent consists of pyrogallic acid, 1 Gm.; formaldehyde, 7 Gm., and water, 100 Gm. Segarra's work has confirmed in Argentine snakes Cajal and Tello's assertions as to bird embryos. Castro, of Cajal's laboratory, had already asserted that the dark area could be eliminated in staining by using previously some neurotropic decalcifying product.

BELGIUM

(From Our Regular Correspondent)

Oct. 23, 1926.

First Aid

In the monthly review *La Croix Rouge de Belgique*, M. Dronsart, director of the Belgian Red Cross Society, describes the organization of first aid. There is only incomplete organization of first aid in Belgium. Some cities, however, particularly Antwerp, have been considering the subject. Dronsart explains how a complete first-aid service may function, while taking account of the already existing agencies. He recommends that: (1) placards be affixed to the residences of persons who are willing to allow their telephone to be used by the public in case of accidents; (2) first-aid stations and first-aid outfits be established—always with suitable signs indicating their location, and (3) in large cities there be created a main first-aid station, consisting of a waiting room, bath rooms, emergency room, operating room and a sick-ward. Such service should include, in each city, a depository for first-aid equipment, to be established by the local chapter of the Red Cross Society. The depositories should comprise all equipment necessary for the rapid establishment of an emergency first-aid station at any point required.

A Laboratory of Maritime Biology

The communal administration of Blankenberghe, located on the coast of Belgium, has recently organized a laboratory for research in maritime biology, to be associated with the University of Liége and under the direction of M. Désiré Damas, professor of zoology at the university. Professor Damas, after explaining the purpose of his researches, allowed his guests to inspect the installations and the laboratory, in which the students of the university have been working for several weeks.

Discontinuance of Free Antidiphtheritic Serum Service

The dispensing of antidiphtheritic serum at state expense was begun in 1912, with a view to decreasing diphtheria mortality. From observations made at the time, it appeared that diphtheria mortality was greater because one did not always have recourse to serum; that serum was sometimes used too late, and that often the dose injected was insufficient. Therefore, the government believed that benefit would accrue from placing free serum at the disposal of patients in restricted circumstances. As the result, the situation improved considerably. The annual number of deaths due to diphtheria, which in 1912 rose to 919, fell to 727 in 1921, 512 in 1922, 324 in 1923, and 255 in 1924. Moreover, a vial of serum that cost 3 gold francs in 1912 can be bought today for only 5 paper francs, and then, too, the living conditions of the laboring classes have improved. A recent law has modified the administration of public charity, especially as regards medical

assistance and the prevention of contagious diseases. Again, in recent years, newer methods of diphtheria prophylaxis are being more and more employed. Owing to the foregoing considerations, in addition to the imperious demands for economy, the government has decided to abolish the act of 1912, to take effect, Jan. 1, 1927.

Mental Disease in Relation to Military Service

The commission appointed to inquire into the causes for exemption from military service by reason of mental and nervous disease has issued a preliminary report on the results of its inquiries, which M. Vervaeck has communicated to the Société de médecine mentale of Belgium. A draft of a new code of military law is being elaborated. It has been pointed out that it is very desirable to see mental prophylaxis applied in military circles, in the interest both of the army and of society in general. The examination of subjects suspected of mental and nervous disorders should be made in well organized centers that are under the direction of physicians who have specialized in psychiatry. The nurses also should have had special training.

A New Schedule of Medical Fees

Following the adoption by the Collège des médecins of Brussels of a new fee schedule compatible with the increased cost of living, the daily press denounced the increasing demands of the medical profession. The only interpretation that can be put on this antimedical manifestation is: It should be accepted as an established fact that the physician is the only person in the world who, in establishing his fee schedule, has not the right to take account of the increased cost of living. A few papers, however, doubtless owing to the influence of their medical collaborators, are now seeking to make it plain that a readjustment of fees is necessary.

Spina Bifida and Incontinence of Urine

M. François of Antwerp has described the results of six laminectomies in spina bifida occulta, with retention or incontinence of urine. The first case brought about amelioration only. In three other cases with compression, almost complete recovery was effected, extending now over twelve, nine and eight months, respectively. In a fifth case, complete cure has been maintained for two months and a half. The author reported a case of complete retention of the urine with obstinate constipation and radiculitis, in which the patient has been cured for a year of retention of the urine, constipation and radiculitis.

The Iodine Content of Water

M. Clinquart has communicated to the Academy of Medicine the results of research on the iodine content of certain waters in Belgium; namely, the city water of Louvain, the water of la Haine, the city water of Saint Ghislain, water from melted hailstones, various rain waters collected in Louvain, water from the source of the Reine de Spa, and water from la Dyle. The author concludes from his researches that the waters of Belgium are much richer in iodine than the waters of Switzerland.

Pyeloscopy

Dr. Legueu of Paris recently delivered an address before the Société belge d'urologie on pyeloscopy, which enables one to study the normal and the physiologic contractility of the renal pelvis. Through a ureteral catheter, one injects slowly an opaque solution, avoiding distention of the kidney pelvis. The sound is then withdrawn and the radioscopic examination begins. The normal duration of pelvic evacuation is from ten to twelve minutes. This evacuation is accomplished by mass contractions and by special contractions at intervals of from ten to twelve seconds. There are in the pelvis a sphincter and also special centers that control the evacuation. Hydronephrosis may be a neuromuscular disease and that conception entails modification in its treatment. Legueu projected on to the screen a series of pyelographic slides, which showed the mechanism of evacuation of the pelvis under normal and under pathologic conditions.

BERLIN

(From Our Regular Correspondent)

Dec. 4, 1926.

The Brain in Left-Handed Persons

Addressing the Aerztlicher Verein of Frankfort-on-the-Main, recently, Riese, assistant at the Neurologic Institute of that city, delivered an address on the brain in left-handed persons. Righthandedness is commonly regarded as a manifestation of domination of the left cerebral hemisphere, with which is associated the importance of the left hemisphere for linguistic performance and purposeful conduct. By this domination of one cerebral hemisphere over the other, man is differentiated from animals. Heretofore, however, it has been difficult to discover on the surface of the brain any definite morphologic evidence for the domination of the left hemisphere. But in the brains of eminent men a differentiation is possible. In several instances, asymmetry of brain performance has corresponded with asymmetry of brain surface. Investigations on the brain surface of left-handed persons of average endowment, Riese stated, have not as yet been published. On the brain of the painter Adolf Menzel, Hansemann discovered similar asymmetry in the configuration of the two cerebral hemispheres to that previously noted in the brains of other eminent men. However, the asymmetry in Menzel's brain was in favor of the right hemisphere. This observation, made many years ago on the brain of a left-handed person, has been substantiated on the brain of a gifted left-handed subject, which was examined in the Frankfort Neurologic Institute. In this brain, too, there was marked asymmetry between the right and the left hemispheres, and, as in Menzel's brain, in favor of the right hemisphere. The fissures and surface markings of the left hemisphere were, for the most part, simpler and more easily followed. The convolutions of the right hemisphere were greater in number, and, owing to increased surface growth, were more folded and more tortuous. In the right hemisphere there were, in places, surface formations that were entirely absent in the left hemisphere, which indicates an increase in the tissue substance of the central nervous system. In the forebrain, the right side of the lower third of the anterior central gyrus is broader and more tortuous. It is probable that here lies the anatomic basis for left-handedness. In the region of the middle frontal gyrus there are, in the right hemisphere, moderate surface formations which are lacking in the left hemisphere. These manifestations in the fore-brain may be regarded as an anatomic expression corresponding to the creative genius of the owner of the brain examined. The right hemisphere of the midbrain also is considerably larger and has more convolutions than the left, especially in regions the integrity of which is indispensable for the higher association and utilization of the sense spheres localized in the vicinity of the midbrain. A considerable surface enlargement is observable also in the region of the right hindbrain, which may be regarded as the anatomic expression corresponding to the drawing (optic) talent of this brain carrier. The asymmetry is least noticeable in the temporal gyri, which is in keeping with the only moderate musical (acoustic) talent of the subject. The observations thus made on the brains of eminent men are an anatomic refutation of the conception that left-handedness is a mark of mental inferiority. Furthermore, left-handedness and the corresponding domination of the right cerebral hemisphere are based on a definite anatomic organization of the brain.

Influences Affecting the Shape of the Skull

Among primitive peoples, the shape of the skull of infants was often influenced by artificial means, and often the heads were made to take on most remarkable shapes. It is also possible to bring about appreciable changes in the shape of the skull by very slight, usually unnoticed, influences. This has been proved by experiments carried out by Dr. Walcher, gynecologist, of Wurzburg. More than twenty years ago, he began treating in a peculiar manner all the children that were born in the midwife training school of which he was the director. Half of the children were by him destined at birth to be long-headed, and half to be short-headed. To the children who were to be long-headed he gave hard pillows, on which an infant's head falls to one side, as an egg that one tries to stand on the little end. When infants a few months old want to see something, they often bring the head into a position half way between the side position and the dorsal position, and that would make the head crooked. Therefore, the beds of the older infants were placed on a commode so that the children could see best from the side position what was going on in the room, and the playthings were hung up at the same height as the head. On the other hand, the infants who were destined by the experimenter to become short-headed were laid on soft pillows, in which their heads were almost buried. These children were given low bedsteads with sides that they could not see through, and their playthings were hung in front of their noses, in order to keep them in the dorsal position. Of the children that were raised in the dorsal position, 84.4 per cent developed a higher cephalic index (that is, became more short-headed) than they had presented in early infancy, while 62.7 per cent of the children kept in the side position showed a lower cephalic index, indicative of development in the direction of long-headedness.

A total of 555 children were treated in the manner described. In order to ascertain to what extent the cranial shape thus forced on the children in their infancy was retained in later years, Professor Basler reexamined recently a number of the persons thus treated and in an article in the *Deutsche medizinische Wochenschrift* he discusses the results of his observations. He found that the artificially produced cranial shape had persisted beyond the period of growth. Basler thinks, however, that the evidence is not sufficient to warrant the rejection in anthropologic researches of the deductions based on the relative short-headedness or long-headedness of races investigated. "We must consider," says Basler, "that only 84.4 per cent and 62.7 per cent, respectively, of the two groups of children experimented with gave a positive result, and that that was during the first twelve days after birth; that is, at a time when the shape of the infant cranium is most easily influenced. From the very fact that the percentages of positive results fell so far short of 100, it will be seen that the hereditary disposition is a factor that must not be underestimated in the determination of the definitive shape of the cranium."

The Number of Children in Berlin Among the Laboring Class and the Middle Class

On the basis of his investigations made in a number of schools in Berlin, Dr. Benjamin, a municipal school physician of that city, has reached the following conclusions, as set forth in an article in the *Zeitschrift für Schulgesundheitspflege:*

1. The tendency to limit the number of children in the family to one and two is marked in large cities among the proletariat and the lower middle class. In 75 per cent of more than 1,500 families investigated, in which, on an average, more than six years had elapsed since marriage, there were only one or two children.

2. The greater average number of children in families whose children attend the Catholic or the common schools is due to the fact that their pupils are drawn to a great extent from the lower social levels, although among the Catholics the influence of the church may play a part. The practice of birth control passes from the well-to-do classes to the middle class and thence to the proletariat. The lower strata of the population are the only ones that have escaped thus far.

3. Owing to the fact that the number of children in a family is influenced by the economic and social status, a change for the better is hardly to be expected until there is an improvement in the economic conditions. In fact, it is more likely that the one and two children type of family will come to include strata of the population of large cities as have not as yet practiced birth control to any great extent.

Increase of Insanity

The number of subjects being cared for in the Prussian institutions for mental, epileptic and neurotic patients has been increasing of late years. The high mark of the prewar period has, however, not been reached. In 1924, the total number of mental and nervous patients admitted to institutions was 125,664, as compared with 118,508 in 1922 and 114,966 in 1923. In 1913, however, the total number was 152,315. Per 10,000 of population, there were, in 1913, thirty-seven mental and nervous patients; in 1922, thirty-one; in 1923, thirty, and in 1924 thirty-three. The decrease in the number of inmates of such institutions in the worst year of inflation, 1923, is probably to be explained by the fact that the families of patients could not pay the cost of care. The number of mental patients alone (excluding nervous patients but including alcohol addicts) was, in 1924, 106,919, as against 99,447 in 1923, 101,186 in 1922, and 137,978 in 1913. In recent years, the increase of alcoholism is particularly noticeable, whereas in the inflation year 1923 there was a marked decrease in the number of alcoholic patients admitted to institutions. In 1922, 3,679 alcoholic persons were admitted to institutions for mental patients. In 1923, the number was reduced to 2,509, but in 1924 the total rose again to 3,836. The decrease in the number of alcohol addicts in 1923 was, without doubt, due to the fact that habitual drinkers, by reason of the inflated currency, were unable to procure their usual quantum of alcoholic beverages. In contradistinction to the increase, in 1924, in the number of admissions to institutions for mental and nervous patients, the number of deaths in such institutions shows a marked decrease: 7,298, as compared with 8,439 in 1923.

Marriages

SAMUEL BEE WOODWARD to Mrs. Margaret Wood Wilson, both of National Soldiers Home, Va., in November, 1926.

HENRY LEROY TOWNSEND, Richmond, Va., to Miss Ellen Douglass Pippen of Littleton, N. C., Dec. 1, 1926.

RICHARD J. BECK to DR. RENGA C. JOHNSON, both of Richmond, Va., at Bridgeport, Ohio, Oct. 8, 1926.

KENNETH BLANCHARD, New York, to Miss Mary Esther Schneck of Mount Carmel, Ill., Nov. 1, 1926.

JOSEPH THOMPSON GRAHAM, Drapers, Va., to Miss Elsie Carlize Krengel of Richmond, recently.

MAX M. COOPERSMITH to Miss Bess Connell, both of Chicago, Nov. 1, 1926.

S. HAROLD POHL, Brooklyn, to Miss Elsie Brickner of New York, June 26, 1926.

HARRY F. WHITE, Fisherville, Va., to Miss Germaine Brutsche, recently.

Deaths

William Merrick Sweet ⊕ Philadelphia; Jefferson Medical College, Philadelphia, 1886; professor of ophthalmology at his alma mater, and formerly professor of diseases of the eye and clinical professor of ophthalmology, at the Graduate School of Medicine of the University of Pennsylvania, Philadelphia; member of the American Academy of Ophthalmology and member and at one time president of the American Ophthalmological Society; consulting surgeon to the Wills Hospital; aged 66; died, Dec. 24, 1926, of pneumonia.

Arthur Seymour Tanner, New York; Columbia University College of Physicians and Surgeons, New York, 1896; formerly member of the New York City Department of Health; at one time acted as chief eye surgeon for the Near East Relief in Turkey and Syria; served during the World War; aged 53; on the staffs of the Mount Sinai Hospital and the New York Post-Graduate Medical School and Hospital, where he died, Nov. 30, 1926, of carcinoma.

William Edwin Sylvester ⊕ Amityville, N. Y.; Dartmouth Medical School, Hanover, N. H., 1878; member of the American Psychiatric Association; formerly deputy medical examiner, state hospital commission, state of New York, office of the bureau of deportation; for eight years physician in charge of the Knickerbocker Hall; on the staff of the Brunswick Home, where he died, Nov. 3, 1926, of heart disease, aged 71.

William Evan Lewis, Cincinnati; Cincinnati College of Medicine and Surgery, 1880; formerly professor of anatomy at the Laura Memorial Woman's Medical College and the University of Cincinnati College of Medicine, and at one time professor of anatomy and secretary of the faculty of Miami Medical College; aged 73; died, Dec. 4, 1926, of pneumonia.

Herman E. Stecher, Supply, Okla.; College of Physicians and Surgeons, Kansas City, Kan., 1903; member of the Oklahoma State Medical Association; past president of the Woodward County Medica' Society; veteran of the Spanish-American and World wars; aged 59; died, Dec. 6, 1926, of cerebral hemorrhage.

Asa Fenton Copeland, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1913; demonstrator of general pathology and gynecology at his alma mater; served during the World War; aged 36; died, Nov. 27, 1926, at the Hahnemann Hospital, of intestinal obstruction and ventral hernia.

Joseph Edouard Lemaitre, Manchester, N. H.; Laval University Faculty of Medicine, Quebec, Que., Canada, 1881; on the staff of the Sacred Heart Hospital; member of the New Hampshire Medical Society; aged 69; died, Nov. 22, 1926, of hypostatic pneumonia.

George M. McCombs, Utica, N. Y.; Bellevue Hospital Medical College, New York, 1877; past president of the Herkimer County Medical Society; formerly coroner of Clayton; aged 72; died, Nov. 28, 1926, of chronic nephritis and uremia.

Thomas A. Rape, Ballinger, Texas; Kentucky School of Medicine, Louisville, 1877; past president of the Runnels County Medical Society; formerly health officer of Ballinger; aged 77; died, Sept. 4, 1926, of carcinoma of the esophagus and stomach.

Henry Ward Ridpath, Indianapolis; Central College of Physicians and Surgeons, Indianapolis, 1884; for six years secretary of the county board of health; formerly deputy coroner; aged 68; died, Nov. 19, 1926, of pulmonary tuberculosis.

John W. Kavanaugh, New Hampton, Mo.; Northwestern Medical College, St. Joseph, 1886; member of the Missouri State Medical Association; aged 63; died, Nov. 29, 1926, at a hospital in St. Joseph, of cerebral hemorrhage and diabetes.

Ralph Miner Niles, Nicholson, Pa.; Medico-Chirurgical College of Philadelphia, 1899; member of the Medical Society of the State of Pennsylvania; aged 48; died, Nov. 21, 1926, of injuries received in an automobile accident.

Edward Joseph Powers, Chelsea, Mass., Medical School of Harvard University, Boston, 1892; for twenty-eight years on the staff of the Chelsea Memorial Hospital; aged 60; died suddenly, Nov. 25, 1926, of heart disease.

Joseph Tolbert Sandlin, Tampa, Fla.; University of Arkansas Medical Department, Little Rock, 1911; member of the Florida Medical Association; served during the World War; aged 46; died, Nov. 15, 1926, of uremia.

Benjamin Rowland Morrow, New York; Medical Department of the University of the City of New York, 1879; aged 75; died, Nov. 12, 1926, at Oakland, Calif., of chronic interstitial nephritis and arteriosclerosis.

Henry Vanderveer Davis, North Branch, N. J.; College of Physicians and Surgeons, Baltimore, 1894; member of the Medical Society of New Jersey; aged 69; died, Nov. 26, 1926, following a long illness.

John Edward McGrath, Hudson, Mass.; Medical School of Harvard University, Boston, 1894; member of the Massachusetts Medical Society; aged 53; died, Nov. 25, 1926, of cerebral hemorrhage.

Francis V. Jordon, Oak Ridge, La.; University of the South Medical Department, Sewanee, Tenn., 1904; aged 48; died, Nov. 24, 1926, at a sanatorium in Vicksburg, Miss., following an operation.

Harriet Louise Harrington, Boston; University of Michigan Medical School, Ann Arbor, 1883; member of the Massachusetts Medical Society; aged 73; died, Nov. 22, 1926, of lobar pneumonia.

Frank Lawrence Talcott, Joliet, Ill.; University of Vermont College of Medicine, Burlington, 1885; aged 64; died, Nov. 30, 1926, at St. Joseph's Hospital, of abscess of the liver.

William A. Boylston, Coushatta, La.; University of Maryland School of Medicine, Baltimore, 1871; aged 84; died, Nov. 16, 1926, at a sanatorium in Shreveport, of senility.

John S. Van Keuren, Omaha; Baltimore Medical College, 1901; aged 54; died, Nov. 15, 1926, of streptococcic infection following an accidental wound of the index finger.

Eli B. Mann, Muncie, Ind.; Louisville (Ky.) Medical College, 1882; member of the Indiana State Medical Association; aged 71; died, Nov. 25, 1926, of arteriosclerosis.

Walter Sherman Cox, Cuba, Mo.; Missouri Medical College, St. Louis, 1889; aged 59; died, Nov. 18, 1926, at San Antonio, Texas, of angina pectoris.

Emory Victor Fulton, Bells, Texas; St. Louis College of Physicians and Surgeons, 1914; aged 34; died, Sept. 29, 1926, of dilatation of the heart and nephritis.

Emmett P. Poindexter, Greenville, Ill.; Missouri Medical College, St. Louis, 1874; Confederate veteran; aged 88; died, Nov. 16, 1926, of chronic myocarditis.

William H. Bumpus, Nashville, Tenn.; University of Tennessee College of Medicine, Memphis, 1880; aged 83; died, Oct. 27, 1926, of trifacial neuralgia.

William B. Breck, Jacksonville, Fla.; New York Homeopathic Medical College and Hospital, 1890; aged 56; died recently, of valvular heart disease.

Buford Taylor ⊕ Westville, Ill.; Medical College of Indiana, Indianapolis, 1885; formerly county coroner; aged 64; died, Nov. 30, 1926, of heart disease.

John Patrick Newman, Macon, Ga.; Medical College of the State of South Carolina, 1869; aged 77; died, Nov. 25, 1926, of cerebral hemorrhage.

Albert S. Lee ⊕ Foote, Miss.; Memphis Hospital Medical College, 1900; aged 50; was instantly killed, Nov. 23, 1926, when struck by a train.

Edward Flavin O'Shea, Boston; Medical School of Harvard University, Boston, 1890; aged 63; died, Nov. 23, 1926, of chronic myocarditis.

Alexander R. Paterson, Evansville, Ind.; Kentucky School of Medicine, Louisville, 1902; aged 53; died, Nov. 23, 1926, of valvular heart disease.

Gottlieb Sternberg, New York; Long Island College Hospital, Brooklyn, 1895; aged 49; died, Nov. 23, 1926, of a self-inflicted bullet wound.

Thomas J. Pressly, Runge, Texas; Medical College of Alabama, Mobile, 1886; aged 67; died, Sept. 27, 1926, of angina pectoris.

John H. Moore, Deport, Texas; Kentucky School of Medicine, Louisville, 1897; aged 54; died, Nov. 27, 1926, of cerebral hemorrhage.

Randolph W. Hill, Los Angeles; Kentucky School of Medicine, Louisville, 1876; aged 72; died, Nov. 19, 1926, of angina pectoris.

Lazarus Golden ⊕ Boston; Medical School of Harvard University, Boston, 1900; aged 54; died, Nov. 6, 1926, of myocarditis.

W. W. White, Russellville, Ala. (licensed, Alabama, 1885); aged 68; died, Nov. 23, 1926, of heart disease.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Glycero-Celery Tonic.—The Brunswig Drug Company of Los Angeles consigned a quantity of "Glycero-Celery Tonic" in August, 1920, and April and June, 1921, to a concern in Arizona. In January, 1923, the United States attorney for the District of Arizona filed a libel praying the seizure and condemnation of the product. When analyzed by the Bureau of Chemistry, the preparation was found to consist of potassium bromide, glycerin, extracts of plant drugs, sugar, alcohol and water. The preparation was labeled in part:

"Nerve Strengthening Tonic . . . Glycero-Celery Tonic will be found most useful . . . in the treatment of General Debility, Nervous Prostration, Insomnia, Anaemia, Neuralgia, Diabetes, Female Weakness, Etc. . . . . for building up the system and for stimulating a healthy increase in weight, strength and vitality."

These claims were declared false and fraudulent, and, in May, 1925, no claimant having appeared, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—*(Notice of Judgment No. 14109; issued July, 1926. Chem. Suppl. 213.)*

T. S. B. Liverclean.—C. M. and R. Tompkins, Elmira, New York, shipped in February, 1926, from New York to Illinois a quantity of "T. S. B. Liverclean," which government officials declared was misbranded. The Bureau of Chemistry reported that analysis showed the stuff to be essentially Glauber's salt, Epsom salt, sugar and a trace of plant extract dissolved in water. It was claimed on or in the trade package that the preparation "Promptly and Positively Relieves the Cause of Nearly Every Form of Sickness," and was especially recommended for rheumatism, appendicitis, lumbago, piles, gout, sciatica, headaches, neuralgia, blood poisoning, eczema, and all disorders of the skin and kidneys. The claims made were declared false and fraudulent, and, in April, 1926, no claimant having appeared, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—*(Notice of Judgment No. 14255; issued August, 1926. Chem. Suppl. 216.)*

Womanette.—The Capital Remedy Company, Jackson, Mississippi, shipped to Dallas, Texas, in March, 1925, a quantity of "Womanette," which the federal officials declared was misbranded. When analyzed by the Bureau of Chemistry, the preparation was found to consist of potassium bromide, extracts of plant drugs (including sassafras), alcohol, water and a trace of a salicylate. It was sold under the claim that it had curative value in irregular and painful menstruation, leucorrhea, inflammation of the ovaries, habitual miscarriage, and many other conditions. These claims were declared false and fraudulent, and, in February, 1926, no claimant having appeared, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—*(Notice of Judgment No. 14153; issued August, 1926. Chem. Suppl. 214.)*

Sirup of Ambrozoin.—The American Apothecaries Company, Astoria, N. Y., shipped in June, 1925, to Wisconsin a quantity of "Sirup of Ambrozoin," which the government declared was misbranded. Government chemists reported that analysis showed the product to consist essentially of ammonium chloride, sodium and potassium bromides, small amounts of plant extracts, a trace of creosote, benzoic acid, alcohol, sugar and water. The preparation was recommended for bronchitis, laryngitis, asthma, whooping cough, and consumption. The claims made were declared false and fraudulent, and, in February, 1926, no claimant having appeared, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—*(Notice of Judgment No. 14191; issued August, 1926. Chem. Suppl. 214.)*

Angelus Compound Sirup of Hypophosphites.—The Brunswig Drug Company, Los Angeles, California, shipped in May, 1922, a quantity of Angelus Compound Sirup of Hypophosphites, which the government declared was misbranded. The federal chemists reported that analysis showed it to consist of sodium, iron, manganese, quinine and strychnine hypophosphites, traces of calcium and potassium salts, glycerin, sugar and water. The claims made on and in the trade package recommending it for consumption, as a brain tonic and for various other conditions, were declared false and fraudulent, and, in May, 1925, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—*(Notice of Judgment 14088; issued June, 1926. Chem. Suppl. 212.)*

Brunswig's Compound Fluidextract Buchu.—The Brunswig Drug Company of Los Angeles, California, shipped, in August, 1920, and November, 1921, a quantity of "Brunswig's Compound Fluidextract Buchu," which the federal authorities declared was misbranded. When analyzed by the Bureau of Chemistry the product was reported to consist essentially of potassium acetate, extracts of plant drugs, glycerin, alcohol and water. The labels declared that the product was for the treatment of diseases of urinary and genital organs, stone in the bladder, all affections of the bladder and kidneys, diseased prostate, dropsical swellings, etc. The claims were declared false and fraudulent, and, on May 22, 1925, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—*(Notice of Judgment 13984; issued May, 1926. Chem. Suppl. 210.)*

Allen's Lung Healer.—H. J. Allen Company of Lynn, Mass., shipped, in May and June, 1925, from Massachusetts to Connecticut, quantities of "Allen's Lung Healer and Body Builder," which the government declared was misbranded. When analyzed by the Bureau of Chemistry it was reported to be a partly emulsified mixture of mineral oil, about 30 per cent., volatile oils, including anise oil, about one-half of 1 per cent., extracts of plant drugs, including licorice, sanguinaria, benzoic acid, sugar and water. Some of the claims made on the labels for this preparation were:

"Builds up the body and fortifies the system against colds and wasting diseases."

"Ordinary colds are cured with a few doses, while chronic and deep-seated coughs yield gradually to a persistent use of the lung healer."

"A highly effective remedy for Lung and Bronchial Affections, such as Bronchitis, Asthma, Catarrh, Whooping Cough, Hoarseness, Sore Throat, Inflammation of the Lungs, Mucous Membranes, etc."

"Allen's Lung Healer reaches the lungs and cures a cough or cold on the lungs when other remedies fail."

These and many similar claims were declared by the government to be false and fraudulent, and the courts upheld the contentions of the government officials. In August, 1925, judgment of condemnation and forfeiture was entered, and the court ordered that the product be destroyed.—*(Notice of Judgment 13734; issued December, 1925. Chem. Suppl. 205.)*

Whitlock's U-GR-GL.—The Cherokee Remedy Company of Chicago, Illinois, shipped in August, 1925, a quantity of Whitlock's U-GR-GL, which the federal authorities declared was misbranded. When analyzed by the Bureau of Chemistry, the stuff was found to be essentially a dilute watery solution of washing soda flavored with menthol. It was recommended for stomach troubles, intestinal infections, diseases of the bladder, diphtheria, skin eruptions, granulated eyelids, and various other conditions. The claims were declared false and fraudulent and in January, 1926, J. T.

Whitlock, having admitted this fact and judgment having been entered, the court ordered that the product might be released to Whitlock on payment of the costs and the execution of a bond, under the condition that the stuff be relabeled in compliance with the law.—*(Notice of Judgment 14100; issued June, 1926. Chem. Suppl. 212.)*

Correspondence

THE RIGHT TO PREVENTION OF INFECTIOUS DISEASE

To the Editor:—I was called in consultation by a physician to see a 3 year old child suffering from diphtheria. The physician himself had delivered the child and had taken care of it since birth. I saw the patient, noted the bull-shaped neck, the diphtheritic membrane appearing at the nostrils, covering the fauces, and making its way down to the larynx, and gave my opinion that it was too late. The child was sent to the Willard Parker Hospital and died the following day. The patient had received two days previously an insufficient dose of antitoxin, but evidently the disease had started at an earlier date than suspected as the hidden and most dangerous form of nasopharyngeal diphtheria—in the posterior nasopharyngeal fossa. A fatal dose of diphtheria toxin can easily be absorbed from this area before the physician may become aware with what he is dealing.

I asked the physician in attendance why he had allowed three years to elapse without placing on the parents the responsibility of deciding whether their child should be immunized against diphtheria with toxin-antitoxin. The physician, busy with his obstetric work and general curative medicine, felt that he hardly had time to carry out even such simple prophylactic measures. But why, if unwilling or unable on account of the pressure of other professional work to do these prophylactic injections himself, did he not refer the family to a fellow practitioner or avail himself of the facilities of a nearby clinic, such as a baby health station, where the clinic physician is willing to perform these simple but necessary and life-saving medical services?

This case, together with many similar cases occurring every day in our communities and leading to unnecessary loss of life, has forced on me the following conclusions:

1. The physician has a definite moral and professional responsibility to let his patients and their parents know the accepted facts in preventive medicine and hygiene, so that the patients shall decide and be personally responsible for preventable sickness and death in their own families.

2. The patients have a definite right to expect that their physicians shall let them know these facts on which they themselves will have the choice of decision.

3. It will pay general practitioners and pediatricians financially to carry out such immunizations against different preventable infectious diseases that can be eradicated by proper prophylactic injections. Concentrating this type of work within a designated period of one hour each week, the physician not only will greatly benefit his patients but will receive a full measure of compensation for his professional efforts during that hour.

4. It is the duty of the department of health or of the health officer of a community to create by suitable publicity the proper demand for prophylactic measures against the various preventable infectious diseases, for which well recognized immunologic procedures have been established through research and clinical experience. The health officer must aid the physician in his efforts, as the latter cannot be expected to urge too strongly professional services on his patients for which he receives financial remuneration.

This is the most effective way in which our preschool child population can be reached—through the general practitioner, whom the family has known for years, and in whom the individual members have confidence.

ABRAHAM ZINGHER, DR.P.H., M.D., New York.
Assistant Professor of Hygiene and Preventive Medicine, New York University and Bellevue Hospital Medical College.
47 West Sixty-Ninth Street.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FREEZNO FOR AUTOMOBILES

To the Editor:—What is the composition of the antifreeze preparation for automobile radiators sold under the name of "Freezno"?

T. H. P., Chicago.

ANSWER.—Tests made in the A. M. A. Chemical Laboratory indicate that Freezno (Best Auto Products Corporation) is a relatively concentrated aqueous solution of glucose and sodium chloride (salt). The use of solutions of electrolytes as the circulating fluid in the cooling system of automobiles is, in general, not to be recommended.

REESTABLISHING FECUNDITY AFTER VASOTOMY

To the Editor:—What is the possibility of reestablishing the fecundity of a man who was sterilized several years ago by ligating and severing the vasa deferentia? Would there be any danger to the life or welfare of the resulting progeny by reason of defective spermatozoa a result of the sterilization? At the time of the operation the man and his wife were in poor health, but now they are in good health and desire additional children. Please omit my name.

M.D., Indiana.

ANSWER.—The restoration of the potency of an occluded vas deferens has been successfully accomplished and reported by many surgeons during the last twenty years; and the operation, called resection of the vas, is now considered a standard procedure.

That the production of spermatozoa in the testis is in no wise impaired by long occlusion of its outlet duct has been demonstrated for periods up to seventeen years. There is no ground in theory or in fact for a suspicion that the potential capacities of ova fertilized by such spermatozoa are impaired or perverted; hence there is no ground for fear that the resulting progeny might be in any way impaired by reason of such prior occlusion.

CLASSIFICATION OF TREPONEMES AND TRYPANOSOMES—VIEWS ON TELEGONY—"TRENCH MOUTH"

To the Editor:—1. Are treponemes and trypanosomes bacteria or protozoa? 2. Is telegony a fact? 3. What is "trench mouth" and its cause? Please omit name.

M.D., Massachusetts.

ANSWER.—1. Trypanosoma is the genus name. The trypanosomes are protozoa of the class Mastigophora and of the order Protomonadina (Mason-Bahr: Tropical Diseases, ed. 7, 1921, appendix 1, pp. 748-756). Treponema is the genus name of micro-organisms of the order Spirochaetales (Dorland's American Illustrated Medical Dictionary, ed. 13, p. 1073). Concerning the spirochetes, Mason-Bahr (page 782) writes: "Seeing that systematic biologists were unable formerly to agree as to the group of the Protista in which spirochetes should be placed, the classification of these flexible spiral organisms has been a matter of considerable difficulty till comparatively recently, although it has now been conceded that on general as well as on morphological grounds they should be classified among the bacteria."

2. As evidence of manifestations of telegony, Prof. Dr. A. Mayer, in his article "Geschlechtsunterschiede in der Reaktion auf die Ehe (*München. med. Wchnschr.*, Feb. 26, 1926, p. 350) cites the often reiterated statements of breeders of animals

that a female dog of pure breed, when copulation with a dog of impure breed has occurred, has for the time being lost the power to produce pure-breed offspring even if she is impregnated by a male of pure breed, and will not regain that power until she has produced several litters. He refers further to Spencer, Funke, Posner and Kronfeld for corroboration of the statement that a European woman who has been impregnated by a negro will transmit certain negro characteristics to children born later by a European father. He admits, however, that the statement has been vigorously denied, for which reason one should take a skeptical view of the matter. Those who believe in the unalterability of the germ-plasma and those who deny the hereditary transmission of acquired characters will naturally reject the idea of telegony. But it must be remembered that the dogma of the unalterability of the germ-plasma and likewise that of the nonhereditability of acquired qualities are now being attacked by professional zoologists (Plate). In a criticism by Waldeyer-Hartz of Mayer's article (*München. med. Wchnschr.*, April 16, 1926, p. 654) the former regards the belief that a female dog of pure breed is contaminated, as it were, for a time by copulation with a dog of impure breed as an old superstition which has no foundation in fact. He has himself seen evidence to the contrary. He thinks that the superstition has sprung up from the fact that in Germany female dogs that were apparently of pure breed but in reality were not so have been frequently used for breeding purposes. If the offspring presented mongrel or impure characteristics, the old superstition has been revived in explanation of the fact.

3. By "trench mouth" is usually meant infection of some structure in the mouth by the organisms of Vincent's angina.

SYNERGISTIC ANALGESIA FOR LABOR

To the Editor:—Can you recommend and is it safe to employ during childbirth a narcosis such as the following? When the cervix will admit two fingers, 2 cc. of a 50 per cent magnesium sulphate solution with 2.5 per cent procaine hydrochloride and one-sixth grain (0.01 Gm.) of morphine is given intramuscularly. Two hours later this is repeated, without the morphine, and by rectum 2½ ounces (75 cc.) of ether, 10 grains (0.65 Gm.) of quinine alkaloid, 3 drams (10 cc.) of alcohol, and sufficient liquid petrolatum to make 4 ounces (120 cc.). Small doses of solution of pituitary may be given to increase the intensity of the labor pains. Please use initials only.

C. L. S., South Dakota.

ANSWER.—The form of narcosis described is a modification of Gwathmey's synergistic method. Gwathmey suggested that a hypodermic injection consisting of one-sixth grain (0.01 Gm.) of morphine, dissolved in 2 cc. of a 50 per cent solution of magnesium sulphate, be given when labor pains occur from four to five minutes apart. This is followed by a rectal instillation consisting of 2½ ounces (75 cc.) of ether, 10 grains (0.65 Gm.) of quinine hydrobromide, 2 drams (7.5 cc.) of alcohol and enough olive oil to make 4 ounces (120 cc.). If the hypodermic injection produces a marked sedative effect, the instillation is delayed from one to two hours; if not, the instillation is given within from fifteen to twenty minutes.

The effect of this combination usually lasts about four hours; but if insufficient, one or two additional hypodermic injections of 2 cc. of 50 per cent magnesium sulphate are given.

Solution of pituitary should not be given to a patient as suggested because pituitary preparations are dangerous when given during the first and second stages of labor.

"HAIRY TONGUE"—VINCENT'S ANGINA

To the Editor:—1. I have a patient with a heavy growth of some fungus on his tongue. This has been identified from scrapings by a reliable pathologist as *Monilia candida* or some closely related type of fungus. Please give your advice as to treatment. 2. What is the significance of a report of the presence of the spirochete and fusiform bacillus of Vincent's angina in a symptom-free throat? Should active treatment with local applications of arsphenamine be instituted? Please omit name.

M.D., Missouri.

ANSWER.—1. The patient with a heavy growth of some fungus on his tongue probably has the condition usually called hairy tongue in textbooks. Monilia and other fungi have been found in these cases, but their pathogenicity has not been established. Treatment is not effective. The various forms of treatment can readily be found in any of the textbooks on skin diseases under "black tongue" or "hairy tongue." The condition usually disappears spontaneously in time.

2. The spirillum and fusiform bacillus of Vincent's angina occur in symptom-free throats. It would probably be wise in such cases to attempt eradication of the organism by local treatment with arsphenamine. If recurrence without symptoms takes place after the treatment, it would hardly seem to be indicated to persist in attempts to free the throat from the organism.

FEEDING THROUGH THE SKIN

To the Editor:—I should like some information on the absorption of nutriment through the skin. I believe it is a popular idea that cacao butter, olive oil and similar substances rubbed into the skin of debilitated subjects and those troubled with serious intestinal complaints can aid them in putting on weight. My impression is that fats are not absorbed in this manner at all, and that the only possible benefit such patients obtain is through the mechanical stimulation of the skin and underlying tissues with a resulting increase in local circulation and muscle tonus. Please omit my name.

B. J., New York.

ANSWER.—Fats are practically not absorbed by the skin, but if their application is accompanied by persistent rubbing, a certain amount of fat can be forced into the skin through the glands. This fat will be absorbed and doubtless digested and utilized. Of course, this applies to true fats that are digestible, not to pseudofats like petrolatum, which are not digestible. There is no reason to believe that a patient could be nourished to any appreciable extent by fats rubbed into the skin.

TREATMENT OF BED SORES

To the Editor:—Please give me the latest treatment for extensive bed sores. Please omit name.

M.D., Tennessee.

ANSWER.—The best treatment for a very extensive bed sore, especially if infected, is the more or less continuous bath, in which the patient's body is suspended on a sheet or hammock and kept immersed in water of a neutral temperature (from 95 to 100 F.) for hours, days or weeks. As soon as the sore has been "cleaned up," a drier treatment is desirable as it favors more rapid healing, there being a great waste of reparative material in all forms of wet treatment. This can be best secured and the prime indication—to remove pressure from the affected part—met by suspending the patient in bed by some sort of overhead elevator, in such manner as to lift the sore part completely off the bed. Such an "elevator" is described by Paul N. Jepson (*Surg. Gynec. Obst.* **36**:418 [March] 1923), and by Bonne (*Med. Klinik.* **20**:784 [June 8] 1924). Similar more perfect but more expensive devices, called "patient's lift" are on the market. Having thus removed the chief cause of the decubitus, the ulcer may now be treated like a similar ulcer in any other part of the body with a fair prospect of success. As the tissue is poorly nourished, one must avoid the error of applying powerful chemical or physical remedies to these sores; for such agents, which may satisfactorily stimulate to healing parts well supplied with blood, are liable to act with destructive violence on cells whose blood supply is very poor. A serious mistake physicians commonly make is to apply to bed sores, while the patient lies in an ordinary bed, various dressings which merely make an additional wad the patient must lie on, thus increasing the pressure and the harm.

BORAX OR WASHING SODA AS WATER "SOFTENER"

To the Editor:—The water here contains a good deal of lime; consequently, it is very hard. Is it in order to add a bit of borax to the bath water for infants? I have been puzzled just what to recommend to soften the water and at the same time not to harm the babies' skin.

A. G. M., Rochelle, Ill.

ANSWER.—As boric acid (the sodium salt of which is borax) has a lower ionization constant than has carbonic acid, one would expect sodium borate to be more completely hydrolyzed and therefore more caustic than sodium carbonate when added to the water. On the other hand, sodium borate is usually considered milder for washing purposes. The reason appears to be that when either sodium borate or sodium carbonate is employed, relatively warm water is used, which in the case of sodium carbonate tends to volatilize the carbon dioxide from the carbonic acid. The result is that the sodium carbonate hydrolyzes further than the sodium borate with a concomitant increase in alkalinity (p_H). In view of this, borax would appear to be indicated.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 11-14. Chairman, Dr. S. W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 4. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.

CALIFORNIA: Los Angeles, Jan. 31 to Feb. 3. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

COLORADO: Denver, Jan. 4, 1927. Sec., Dr. David A. Strickler, 1011 Republic Bldg., Denver.

CONNECTICUT: State Board of Healing Arts (prerequisite to examination), Feb. 12. Sec., Dr. Charles M. Bakewell, Box 1895, Yale Station, New Haven.

DISTRICT OF COLUMBIA: Jan. 11. Sec., Dr. Edgar P. Copeland, Suite 110, 1801 Eye St., N. W. Washington.

HAWAII: Honolulu, Jan. 10-13. Sec., Dr. A. L. Davis, 1254 Emma St., Honolulu.

ILLINOIS: Chicago, Jan. 11-13. Supt. of Registration, Mr. V. C. Michels, Springfield.

INDIANA: Indianapolis, Jan. 11. Sec., Dr. William T. Gott, Crawfordsville.

KANSAS: Topeka, Feb. 8. Sec., Dr. Albert S. Ross, Sabetha.

MINNESOTA: Minneapolis, Jan. 4-6. Sec., Dr. A. E. Comstock, 636 Lowry Bldg., St. Paul.

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II, Feb. 9-11. All applications should be in by Jan. 9. Sec., Dr. John S. Rodman, 1600 Walnut St., Philadelphia.

NEW YORK: Albany, Buffalo, New York, Syracuse, Jan. 24-27. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, Albany.

NORTH DAKOTA: Grand Forks, Jan. 4-7. Sec., Dr. G. M. Williamson, Grand Forks.

OREGON: Portland, Jan. 4-6. Sec., Dr. M. K. Hall, 816 Pittock Block, Portland.

PENNSYLVANIA: Philadelphia, Jan. 25-29. Mr. C. D. Koch, Director, Professional Education Bureau, Harrisburg.

RHODE ISLAND: Providence, Jan. 6-7. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 18. Director, Dr. H. R. Kenaston, Bonesteel.

UTAH: Salt Lake City, Jan. 4-5. Director, Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, Feb. 8-10. Sec., Dr. W. Scott Nay, Underhill.

WASHINGTON: Seattle, Jan. 10, 1927. Mr. George L. Berger, Assistant Director, Dept. of Licenses, Olympia.

WISCONSIN: Madison, Jan. 11. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse.

WYOMING: Cheyenne, Feb. 7-8. Sec., Dr. G. M. Anderson, Cheyenne.

Mississippi October Reciprocity Meeting

Dr. F. J. Underwood, secretary of the Mississippi State Board of Health, reports that 11 candidates were licensed by reciprocity at the meeting held in Jackson, Oct. 21, 1926. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery		(1917)	Illinois
Tulane University of Louisiana		(1910), (1923), (1924)	Louisiana
University of Missouri School of Medicine		(1898)	Missouri
Creighton University College of Medicine		(1925)	Dist. Colum.
Meharry Medical College		(1908), (1916)	Tennessee
University of Tennessee Coll. of Med.		(1923), (1924), (1925)	Tennessee

Connecticut July Examination

Dr. Robert L. Rowley, secretary of the Connecticut Medical Examining Board, reports the written examination held at Hartford, July 13-14, 1926. The examination covered 7 subjects and included 70 questions. An average of 75 per cent was required to pass. Of the 14 candidates examined, 12 passed and 2 failed. Dr. Rowley also reports that 21 candidates were licensed by endorsement of their credentials at the meeting held at Hartford, July 27, 1926. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Yale University School of Medicine		(1924)	88.6
(1926) 77.4, 78, 81, 83.2, 84, 87, 88			
Howard University School of Medicine		(1924)	79.8
Northwestern University Medical School		(1926)	88
University of Nebraska College of Medicine		(1925)	84.7
Fordham University School of Medicine		(1916)	75

College	FAILED	Year Grad.	Per Cent
Meharry Medical College		(1926)	71
University of Naples, Italy		(1919) 59.5, (1922)	67.4

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Yale University School of Medicine		(1923), (1924)	N. B. M. Ex.
Georgetown University School of Medicine		(1922)	New York
George Washington University Medical School		(1912)	Mass.
Baltimore Medical College		(1896)	R. Island
Boston University School of Med.		(1924, 2) Mass., (1925)	Maine
Harvard University		(1924)	N. B. M. Ex.
Tufts College Medical School		(1923)	Mass.
Washington University School of Medicine		(1919)	Missouri
Columbia Univ. College of Phys. and Surgs.		(1907), (1913)	New York
New York University Medical College		(1898)	New York
University and Bellevue Hospital Medical College		(1925)	New York
University of Cincinnati College of Medicine		(1925)	Ohio
University of Pennsylvania School of Medicine		(1924)	N. B. M. Ex.
University of Vermont College of Medicine		(1906)	New Hamp.
(1925, 3) Vermont			

Book Notices

ORTHOPÆDIC SURGERY. By W. A. Cochrane, M.B., Ch.B., F.R.C.S.E., Assistant Surgeon, the Royal Infirmary, Edinburgh. Cloth. Price, $6.50. Pp. 528, with 504 illustrations. New York: William Wood & Company, 1926.

This volume, by an Edinburgh orthopedic surgeon who has had considerable training and experience in American orthopedic surgery, is a valuable contribution. The author gives the student an understanding of the scope, principles and essential details of orthopedic surgery in relation to the study of pathology and general medicine and surgery. He emphasizes the early recognition and treatment of conditions that usually lead to deformity and disability. The first part of the book, which should be read by every one interested in this subject, is devoted to a study of bodily mechanics and posture with reference to the body as a whole as the basis for the restoration of function. He presents the point of view of Goldthwaite on the structural and functional conceptions of disease. He discusses the various anatomic types and the importance of reconstructing the patient with chronic conditions such as arthritis. Physical education in relation to medicine is emphasized. The discussion of muscle tone and spastic paralysis is brought down to date. The style of the author is good. Some of the photographs and roentgenograms did not reproduce well, but the diagrams and sketches, especially those on posture, are excellent. Many of these are recognized from former publications, but are valuable nevertheless. The book is offered to the student as a supplement to the various textbooks on orthopedic surgery.

DIE OPERATIVE TECHNIK DES TIEREXPERIMENTES. Von H. F. O. Haberland, Dr. Med., a. o. Professor für Chirurgie an der Universität Köln. Paper. Price, 28.50 marks. Pp. 336, with 300 illustrations. Berlin: Julius Springer, 1926.

The first 146 pages of this book on operative technic employed in animal experimentation (on vertebrates) deal partly with the physiologic anatomy, mode of life, care, nourishment and diseases of the more commonly used laboratory animals (monkey, dog, cat, rabbit, guinea-pig, rat, mouse, pigeon, lizard, snake, tortoise, frog, salamander and fish), and partly with general methods of analgesia, anesthesia, bandaging, asepsis and other principles of surgery. A chapter of after-care and necropsy technic concludes the general principles of the subject. The special part opens with a relatively large chapter on immunologic technic followed by several on practical directions for blood withdrawal and operations on the blood and lymphatic system (blood transfusion and perfusion, blood pressure methods, suturing of blood vessels and operations on the heart). Succeeding chapters deal with operative technic for experimentation on the central nervous system, muscles, head, neck, chest, peritoneal cavity and urogenital system. Besides a satisfactory index, the author gives a small list of textbooks which he used in the preparation of the volume. Although it is a useful book, the many and often unnecessary illustrations make it unduly expensive. The medical students of our larger American universities are familiar from personal experience with much of the technic described, and some that is more satisfactory. On the other hand, there is an excellent description of angiostomy (London) as modified by the author. In his description of the operation on the stomach, the author curiously retains a description of the physiologically unsound Pawlow cannula and omits the technic for making a miniature stomach (Pawlow pouch).

In an historical reference to the discovery of animal hypnotism, which he attributes to Schwenter (1638), the author makes the curious blunder of thinking that Athanasius Kircher, who is usually credited with the discovery, lived in the nineteenth century. The description of Kircher's hypnotized chicken with illustration was published in the "Physiologia Kircheriana" in 1680, the year of Kircher's death. Since the author states that the technic described is based on personal experience, certain errors which seem to indicate that the work is in part a compilation are surprising. For example, bilateral section of both recurrent laryngeal nerves in adult (American) dogs does not induce stridor or dyspnea; pneumothorax in a frog is not fatal, not only because the frog still enjoys cutaneous respiration but because it can still swallow air if given a chance (its normal mechanism of respiration is left intact by the preparation as described by the author); in the directions for finding the phrenic nerve, he uses as an anatomic landmark the clavicle, a structure which dogs do not possess.

REMINISCENCES. By George Henry Fox, A.M., M.D. Cloth. Price, $3.50. Pp. 248, with illustrations. New York: Medical Life Press, 1926.

Dr. George Henry Fox has had a long, useful and distinguished career, and it is fortunate that he has given us these reminiscenses of it. The first surprise that one has in the book is the long span of time which the author's personal family contacts cover. His father was born 134 years ago, and was in the War of 1812. Through his father he had intimate knowledge of his grandfather, who fought in the colonial wars and in the Revolution. It may be added that George Henry Fox enlisted in the Civil War and that his son, Howard, was in the Great War; so that, including his grandfather and his son, his direct line has been in all the important American wars from the colonial wars before the Revolution, down to the Great War of 1918. Dr. Fox makes no particular point of this record, but it gives an interesting historical flavor to his recollections of his boyhood and of his family.

He was born in upstate New York and was educated there; he graduated from the University of Rochester in 1867. The first chapters, giving his recollection of his childhood and of the customs and conditions at that time, make an altogether agreeable recital. They are not only interesting but have historical value. He went to study medicine to the University of Pennsylvania and thence to the Philadelphia Hospital (Blockley). He writes in the same easy, interesting way of the medical schools and the medical teachers at that time. These chapters are useful contributions to the records of the University of Pennsylvania and of Blockley. He came in contact with some really great men there, among whom were Joseph Leidy, Alfred and Charles Stillé, R. A. F. Penrose, D. Hayes Agnew, H. C. Wood and William Pepper, and he gives us some vivid sketches of these men.

He fortunately was able to go to Europe immediately after his internship. There he spent almost three years, from 1870 to 1873, one of the years with his young wife. He saw much of Europe in general, and he had an excellent opportunity to see medical Europe. He spent his time chiefly in Vienna, Paris and London, working after the first year in dermatology. He was at the University of Vienna at the time of its greatest faculty and was a student under such men as Rokitansky, Braun, Arlt, Schrötter, Sigmund, Zeissl, Hebra and Neumann. He has interesting things to tell of all of them. He had a predilection for dermatology, and Hebra probably crystallized that into a definite decision. He studied under the greatest masters of dermatology in Europe at that time. He worked first under Hebra and Neumann, then, in Paris, under Bazin, Hardy and Vidal, and later, in London, especially under Tilbury Fox, although he saw all of London dermatology at that time. These chapters of European dermatology in the seventies are not only interesting but also valuable; we need all the glimpses of these old masters that we can get. To Fox, as to all of the students of skin diseases in those days, Hebra was the great man. He must have been a great personality and a great teacher as well as a master of skin diseases. Fox has much of interest also to tell of the French and English leaders at that time. He helps us to visualize all of them and to appraise them. These chapters on dermatology in Europe in the seventies are an instructive and entertaining bit of history. Returning to New York in 1873, he began immediately to specialize in skin diseases, and for more than forty years was actively engaged in practice; continuously, almost from the beginning of his experience, holding a teaching position; for thirty years, he was professor of dermatology in the College of Physicians and Surgeons.

It is always worth while to study such an experience. Fox gives less of the New York part of his life than we should have been glad to have, but he gives enough to make these chapters useful and suggestive. One of the most interesting parts of them are the appreciative sketches of some of his old collegues, such as Piffard.

These reminiscences are a record of a happy, useful life. Fox has taken life and its responsibilities seriously. He has been an industrious and thoughtful student of dermatology. But he has not taken himself too seriously; he has had a fine sense of humor to prevent that. He has been a companionable man, with a gift for friendship, who has enjoyed life; and these qualities show in his reminiscenses. They are mellow, cheerful, full of interest and humorous anecdotes, and through all of it show the pleasing qualities of a friendly man. He has given us a book that any one can read with pleasure and with improvement to his outlook on life.

ETUDES SUR LES AFFECTIONS DE LA COLONNE VERTÉBRALE. Par André Leri, professeur agrégé à la Faculté de médecine de Paris. Paper. Price, $1.80. Pp. 526, with 115 illustrations. Paris: Masson et Cie, 1926.

This monograph on the affections of the spine is excellent. The author has previously written voluminously on the subject. He discusses anomalies and disturbances of development, especially spina bifida occulta. He presents the interesting subjects of trophedema, scleroderma, late paralysis and paralysis of unknown origin. Sacralization of the fifth lumbar and lumbarization of the first sacral segments are described and illustrated. Then acquired conditions are discussed, most important of which are the ankylosing conditions rhizomelic spondylosis, with which the name of his chief Pierre Marie is associated, and vertebral arthritis. He discusses sciatica and its relation to arthritis of the spine. Sacro-iliac disease is also presented. Each chapter correlates the pathologic anatomy with the clinical considerations. The illustrations, most of which are pencil line drawings of roentgenograms, are excellent. There is a preface by Pierre Marie, in which the book is highly recommended.

WHY INFECTIONS?—In Teeth, Tonsils and Other Organs. By Nicholas Kopeloff, Ph.D., Associate in Bacteriology, Psychiatric Institute, Ward's Island, N. Y. Cloth. Price, $2. Pp. 182, with 15 illustrations. New York: Alfred A. Knopf, 1926.

Preliminary to a discussion of the main subject, focal infection, the author devotes the first seven chapters to a discussion of pathogenic bacteria, general infection, immunity and, superficially, the anatomy and physiology of the teeth, faucial tonsils, nasopharyngeal adenoid tissue, paranasal sinuses, middle ear, the abdominal viscera and the genito-urinary system. Adequate discussion of these subjects in so small a space is apparently impossible, but has been well done. He recognizes focal infection as a fundamental principle in the causation of systemic disease. He properly criticizes the wide application of the principle and the irrational removal of tonsils and teeth that has been practiced in this country. He combats the statement of Dr. H. A. Cotton, superintendent of the New Jersey State Hospital, that focal infection is the chief cause of functional mental disorders. He criticizes the work in clinical bacteriology of E. C. Rosenow and others, and it is evident that he does not comprehend the underlying principles of Rosenow's contention concerning the transmutability of the streptococcus-pneumococcus group of microorganisms and tissue tropism. A glossary is appended to afford the layman a better understanding of the subject, but the layman is most likely to be confused by the author's attempt to inform him concerning disease and especially focal infection.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

GENETIC STUDIES OF GENIUS. Volume II: The Early Mental Traits of Three Hundred Geniuses. By Catharine Morris Cox. Assisted by Lea O. Gillan, Ruth Haines Livesay, and Lewis M. Terman. Cloth. Price, $5. Pp. 842. Stanford University: Stanford University Press, 1926.

Modern psychology applied to an analysis of geniuses of the past.

KLINISCHES LEHRBUCH DER INKRETOLOGIE UND INKRETOTHERAPIE. Herausgegeben von Professor Dr. Gustav Bayer und Professor Dr. R. von den Velden. Paper. Price, 27 marks. Pp. 423, with 37 illustrations. Leipsic: George Thieme, 1927.

Somewhat optimistic consideration of endocrinology and glandular therapy.

LEHRBUCH DER NORMALEN ANATOMIE DES MENSCHEN. Von Prof. Dr. F. Sieglbauer, Vorstand des anatomischen Institutes der Universität Innsbruck. Paper. Price, 21 marks. Pp. 910. Berlin: Urban & Schwarzenberg, 1927.

One volume textbook of anatomy to be used with well known atlases.

RECENT ADVANCES IN BIOCHEMISTRY. By John Pryde, B.Sc., M.Sc., Lecturer in Physiological Chemistry, Welsh National School of Medicine, University of Wales. Cloth. Price, $3.50. Pp. 348, with 38 illustrations. Philadelphia: P. Blakiston's Son & Company, 1926.

Survey of progress in chemical understanding of living tissues.

THE RADIUM TREATMENT OF CANCER OF THE UTERUS. By the Cancer Research Committee of the London Association of the Medical Women's Federation. A Report to the Medical Research Council and to the British Empire Cancer Campaign. Paper. Price, 2/6 net. Pp. 28, with illustrations. London: H. K. Lewis & Company, Ltd., 1926.

Showing that radium is useful but not specifically curative.

LEADERSHIP: A Manual on Conduct and Administration. By William Colby Rucker, M.S., M.D., Dr.P.H., Surgeon, United States Public Health Service. Cloth. Price, $2.25. Pp. 171. New York: Macmillan Company, 1926.

Brief guide to the psychology of being an executive.

FORTSCHRITT UND SOZIALE ENTWICKLUNG: Geschichtsphilosophische Ansichten. Von Ferdinand Tönnies. Paper. Price, 5 marks. Pp. 142. Karlsruhe: G. Braun, 1926.

A philosopher's opinion of the changing world.

STRATEGIE DER MÄNNLICHEN ANNÄHERUNG. Von Dr. med. Heinrich F. Wolf. Mit einer Vorrede von Dr. Alfred Adler. Paper. Pp. 321, with 8 charts. Vienna: "Ilos," 1926.

Scientific consideration of seduction.

LA RŒNTGENTHÉRAPIE DES ÉPITHÉLIOMAS CUTANÉS ET CUTANÉO-MUQUEUX PAR LA MÉTHODE DU DR. J. COSTE. Par Dr. Georges Girel. Paper. Price, $1.20. Pp. 300, with illustrations. Paris: Masson et Cie, 1926.

Roentgen-ray therapy of epithelioma.

TOLDT: ANATOMISCHER ATLAS FÜR STUDIERENDE UND ÄRZTE. Herausgegeben von Prof. Dr. Ferdinand Hochstetter, Vorstand des II. anatomischen Institutes der Universität Wien. Erster Band. A.—Die Gegenden des menschlichen Körpers. B.—Die Knochenlehre. C.—Die Bänderlehre. D.—Die Muskellehre. Zweiter Band. E.—Die Eingeweidelehre. F.—Die Gefässlehre. Dritter Band. G.—Die Nervenlehre. H.—Die Sinneswerkzeuge. Thirteenth edition. Paper. Price, 36.60 marks. Pp. 984, with 1524 illustrations. Berlin: Urban & Schwarzenberg, 1927.

EMMO SCHLESINGER'S RÖNTGENDIAGNOSTIK DER MAGEN- UND DARMKRANKHEITEN MIT EINSCHLUSS DER ERKRANKUNGEN DER SPEISERÖHRE UND GALLENBLASE. Herausgegeben von Dr. Ernst Rachwalsky, Spezialarzt für Magen- und Darmkrankheiten, Berlin. Mit einem Originalbeitrag über die Erkrankungen der Speiseröhre von Dr. Emmo Schlesinger. Third edition. Paper. Price, 24 marks. Pp. 495, with 290 illustrations. Berlin: Urban & Schwarzenberg, 1927.

REPORT OF COUNCIL OF NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS TO THE TWENTY-SEVENTH GENERAL MEETING OF MEMBERS. Paper. Pp. 56. London, 1926.

Medicolegal

Liability for Results of Minor Injuries—Septicemia

(Koehler v. Waukesha Milk Co. (Wis.), 208 N. W. R. 901)

The Supreme Court of Wisconsin says that the defendant, having delivered milk in a quart bottle with a fractured rim, the plaintiff's wife, in picking up the bottle, cut one of her fingers. She subsequently died from septicemia. A substantial and difficult matter presented for determination was as to whether or not there could be sustained a recovery, in favor of her estate, for her pain and suffering from blood poisoning preceding her resulting death. The case presented very sharply and distinctly the question whether one who fails to exercise ordinary care, as that term is recognized in the law of negligence, in his acts, so as to avoid that which would ordinarily, and in the vast majority of cases, result in but a slight cut or puncture of the flesh by fractured glass, as here, or as it might well be from a nail, pin, tack, pocket knife, splinter, or any of the almost infinite ways in which such things occur in daily life, which cuts or punctures, as is common knowledge, in the vast majority of instances, are disregarded or have but self or home attention, and which, if followed by a lawsuit, would properly result in slight or but nominal damages, must nevertheless be held answerable for very substantial damages when the unexpected, extraordinary, and that which is out of the usual course of events follows as a result. Or, as applied to the instant case, whether blood poisoning, which may well be within the field of reasonable anticipation of one failing to exercise due care in the management of an instrumentality of power and capacity naturally, likely, and clearly efficient to inflict substantial injury, such as is a railroad train, automobile, electric power, gun, and the countless powerful adjuncts of modern life, and where substantial injury is so probably a natural consequence, is also to be held as within the field of consequential damages in the other class of cases stated above. Or should it be held that such unexpected and unusual results are too remote to be within the field of consequential damages recognized in tort actions where recovery is sought for mere negligence; i. e., the mere lack of the degree of care exercised by, or, more properly stated perhaps, expected of, the great mass of mankind?

It may well be urged that to place such a suggested responsibility on one charged with the duty of anticipating, guarding against and avoiding that which ordinarily results in but slight or immaterial injury is in practical effect placing on him the duty of extraordinary as distinguishable from ordinary care. For, strictly speaking, the phrase "ordinary care," as used in defining the duty of one to another, connotes the idea of thereby avoiding the "ordinary results" of any lack of "ordinary care," and properly to connote the duty of avoiding unusual or extraordinary results would seemingly require the use of unusual or extraordinary care. But here, as in many other instances of legal phraseology, the supply of definite, precise and absolutely accurate terms is far short of the demand. Moreover, to deny to a person innocent of any wrongdoing compensation for injuries and results therefrom which would not have occurred except for the negligence of a responsible person would, in many instances, work injustice. In the choice thus presented between two interested persons—one breaching the duty the law imposed on him of exercising due care, and the other being without fault—the law favors the innocent party, and saddles the entire responsibility on the one breaching his legal duty under what must be held to be the rule of law in the choice by the courts of the second of these alternatives.

The distinction between a primary question of liability for the injury and a secondary one of liability for damages flowing therefrom has been directly pointed out or tacitly recognized in a number of decisions of this court. These rulings may be summarized as declaring that, on facts warranting a finding of actionable negligence (which necessarily includes the element of reasonable anticipation that some injury might result from the act), then responsibility arises for all consequent damages naturally following the injury, whether

such resulting damages were reasonably to be anticipated or not, provided, however, that there is no break of the natural sequence or continuity between the injury and the claimed result by any independent or intervening causes.

The jury found that $2,000 would be proper compensation for damages to the estate of the plaintiff's wife for her pain and suffering, and that the damages for expenses for medical treatment were $673; and the court directs the entry of a judgment for $2,673.

Construction of Law as to Possession of Narcotics

(State v. Charlie Mun (Mont.), 246 Pac. R. 257)

The Supreme Court of Montana, in affirming a judgment of conviction of the defendant of having had unlawful possession of opium, says that sections 3189 to 3202 of the revised codes of 1921 of that state are a portion of the act of 1921 to regulate the production, manufacture, possession, sale, exchange or distribution of opium or coca leaves, their salts, derivatives or preparations, and to provide penalties for violations of the act. Section 3200 of the revised codes provides, among other things:

> That it shall be unlawful for any person to have in his possession or under his control any of the drugs mentioned in this act, if such possession or control is obtained in a manner contrary to the provisions of this act; and such possession or control shall be presumptive evidence of a violation of this act.

The section then enumerates the persons who may lawfully possess the proscribed drugs, among them, a nurse, when the drug is to be used for medicinal purposes for another person and under the supervision of a licensed physician. Inferentially, section 3192 permits a physician, duly licensed to practice in Montana, to have legal possession of any of the proscribed drugs; and by section 3189 any other person may obtain legal possession of any of such drugs on the original written prescription of a physician duly licensed to practice in the state, but not otherwise.

In their brief, counsel for the defendant contended that under the provisions of section 3200 the presumption of guilt from possession of the drug did not arise until it was first proved that the possession was obtained contrary to the provisions of the act; and, by way of dictum, this court, in *State v. Mark*, 69 Mont. 18, 220 Pac. 94, gave countenance to that theory, and said: "Proof that the prohibited drugs were found in the defendant's possession, by the statute is not made presumptive of any evidence of guilt." On further consideration, this court is now of the opinion that such a construction of the language of the section is impossible. It would mean that the state must first prove that the possession was obtained in violation of the law and is unlawful, and then a presumption of guilt would arise; but, when the state has proved that the possession is unlawful it has proved its case, and there is not room for any presumption.

Crudely as it is drawn, section 3200 was intended, the court thinks, to declare the rule that it shall be unlawful for any person (excepting the persons permitted by the act to have lawful possession of the proscribed drugs) to have in his possession or under his control any of the drugs mentioned in the act, and the possession or control of any of such drugs shall be presumptive evidence that the drug is possessed or controlled in violation of the law.

Board of Health and Police Power—Prohibiting Boating

(State v. Quattropani (Vt.), 133 Atl. R. 352)

The Supreme Court of Vermont, in holding that proceedings were not in error in which the respondent was convicted and fined for violating an order of the state board of health prohibiting boating on a pond which was the source of a city's water supply, says that it was apparent that the order was made under section 6313 of the general laws of the state, which provides that the board may make rules and regulations to prevent the pollution and to secure the sanitary protection of waters, streams and ponds used as a source of public water supply. Under this section, the board acts summarily, and the respondent was not entitled to any notice other than the publication of the order as provided for in section 6314, which was proved. That the public health is a proper subject for police protection, and that that power can lawfully be delegated to the state board of health, were both unquestioned, and are unquestionable. And it is not to be forgotten that its orders, when made under statutory authority and in conformity with the law, have all the force and effect of legislative enactments. A notice to the respondent in advance of this order was not any more required than such a notice would have been if the provisions of the order had been embodied in a special act of the legislature. In either case, he would be entitled to such notice, if any, as the statute required, and none other. His ignorance of the order, if shown, would not affect his situation.

The police power in its broadest significance is but another name for sovereignty itself. In its narrower sense, as here exercised, it signifies the governmental power of conserving and safeguarding the public safety, health and welfare. In this sense, it covers a very wide field of operation. All contracts entered into, all charters granted, all rights possessed, and all property held are subject to its proper exercise, and must submit to its valid regulations and restrictions. The necessity and propriety of the mandate are for the legislature or its delegate; its character whether valid or otherwise, is for the court. A valid exercise of the police power does not amount to a taking of property as by eminent domain, and compensation is not required, though property values are impaired.

This court cannot say that as matter of law this order was unreasonable and arbitrary. This court is aware that cases are to be found in which similar orders have been condemned, but this court does not see any reason for departing from a policy fully established by its decisions of approving a generously free exercise of the power to safeguard the health of the public. In sustaining such regulations as the one before it, this court is sufficiently supported by the decisions. It is not necessary to the validity of an order of this kind that the prohibited act should do actual harm. It is enough if, in the circumstances, it is reasonable to apprehend that the act may result, directly or indirectly, in the contamination of the water. Moreover, while the danger of contamination was not quite so plain here as it was in a case wherein this court upheld an order prohibiting bathing in this same pond, this court is satisfied of its presence, and that boating on this pond, however harmless it of itself may be, would give rise to a reasonable apprehension that such use might involve mingling with the water foreign matter that would tend to render it unfit for drinking purposes.

Services Rendered on Words and Conduct of Claim Agent

(Copeland v. Southern Ry. Co. (Ga.), 133 S. E. R. 271)

The Court of Appeals of Georgia, division 1, in holding that the trial court did not err in directing a verdict for the defendant, says that the plaintiff sued the railway company in open account for professional services rendered and medicines furnished an employee of the company. Both sides introduced evidence, argument was not had, and the court directed a verdict for the defendant. The theory of the plaintiff's case was that the defendant was obligated to pay the physician's bill by the words and conduct of its claim agent. Neither the evidence for the plaintiff, nor the evidence for the defendant, nor both together, showed that the claim agent had authority to bind the defendant to pay the bill in question; and it was inevitable that the plaintiff could not recover.

Society Proceedings

COMING MEETINGS

American Association for the Study of Goiter, Philadelphia, Jan. 31-Feb. 2. Dr. Kerwin Kinard, Bryant Building, Kansas City, Mo., Corresponding Secretary.

American College of Physicians, Cleveland, Feb. 21-25. Dr. G. M. Piersol, 1913 Spruce Street, Philadelphia, Secretary General.

Pacific Coast Surgical Association, Del Monte, California, Feb. 25-26. Dr. E. L. Gilcreest, Fitzhugh Building, San Francisco, Secretary.

Sioux Valley Medical Association, Sioux City, Iowa, Jan. 18-19. Dr. R. F. Bellaire, Trimble Block, Sioux City, Secretary.

Tri-States Medical Association of Mississippi, Arkansas and Tennessee, Memphis, Tenn., Feb. 1-3. Dr. A. P. Cooper, Bank of Commerce Building, Memphis, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in America for a period of three days. No foreign journals are available prior to 1921, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obst. and Gynec., St. Louis

12: 459-632 (Oct.) 1926

*Endometriosis of Sac of Right Inguinal Hernia, Associated with Pelvic Peritoneal Endometriosis and Endometrial Cyst of Ovary. J. A. Sampson, Albany, N. Y.—p. 459.

*Uterine Mucosa in Fallopian Tube; Origin of Aberrant Endometrium. E. Novak, Baltimore.—p. 484.

*Endometriosis. C. H. Davis and R. S. Cron, Milwaukee.—p. 526.

*Relation Between Treatment of Cancer of Cervix and Cell Type. F. A. Pemberton, Boston.—p. 536.

*Roentgen-Ray Pelvimetry. H. Thoms, New Haven, Conn.—p. 543.

*Trial Labor in Treatment of Contracted Pelves. H. Bailey, New York.—p. 550.

*Ligation of Pelvic Veins in Thrombophlebitis. R. R. Huggins, Pittsburgh.—p. 562.

*Induction of Labor by Means of Pituitary Extract. W. A. Scott, Toronto.—p. 571.

*Liver Function Tests in Toxemias of Pregnancy. E. L. King, New Orleans.—p. 577.

Function of Ovary: Review. R. T. Frank, New York.—p. 585.

*Value of Cauterization of Cervix Before Hysterectomy. B. Z. Cashman, Pittsburgh.—p. 591.

Peritoneal Endometriosis.—Clinical and pathologic study of pelvic peritoneal endometriosis has convinced Sampson that it is usually due to the escape of menstrual blood into the peritoneal cavity with the subsequent local reaction. Menstrual blood, like other irritants, causes granulation and scar tissue, adhesions and peritoneal inclusions. In addition, endometrial tissue is often found on the surface of or imbedded in these peritoneal lesions and must arise either from the implantation of fragments of uterine mucosa which are often present in menstrual blood, or else in some way the peritoneum is converted into endometrial tissue by the specific stimulation of some ingredient of this blood. Clinical observations indicate or at least suggest that endometrial tissue may be transplanted successfully in human beings. The local peritoneal reaction toward the menstrual blood creates conditions favoring the retention and engrafting of any living tissue in this blood, just as similar reactions make possible the implantation of fragments of cancer escaping into the peritoneal cavity. These implantation-like lesions occur most frequently in the dependent portions of the pelvis and in its normal peritoneal pockets and folds. A case is reported by Sampson of pelvic peritoneal endometriosis associated with an endometrial cyst of the ovary and an inguinal hernia. Peritoneal lesions containing endometrial tissue were present in both the anterior and posterior culdesac and also in the walls of the hernia sac, including its neck, the lumen of the latter having been occluded (or nearly so) by the endometriosis in this situation. Observations made at the operation, and the laboratory study of the specimens removed, indicate that the pelvic peritoneal lesions and those of the hernia sac had a common origin, and from some material escaping into these cavities and the local reaction to it, Sampson believes that the cause of these lesions was menstrual blood. The endometrial cyst of the ovary is evidence that a perforation may have occurred, and the patent tubes are two avenues by which menstrual blood may have reached the peritoneal cavity and the hernia sac.

Uterine Mucosa in Fallopian Tube.—Novak's paper is based on the results of the histologic study of many hundreds of fallopian tubes, with particular reference to their contents. In seven tubes, particles of uterine mucosa were demonstrated lying free in the lumen, and in one tube, which contained a pregnancy in its outer third, there was, between this point and the uterus, a mass of cells which resembled trophoblastic or possibly decidual cells. None of the women from whom these endometrium-containing tubes were removed was menstruating, most of them being many days removed from the menstrual period. In the cases in which the endometrium was available for study, this was seen to be in a nonmenstruating phase, with an intact surface. In none of the cases did the endometrium in the tubes show the characteristic picture of endometrium thrown off at menstruation.

Endometriosis.—Davis and Cron record nine cases of heterotopic endometrial tissue, with the hope that it will aid in establishing endometriosis as a clinical entity, and in the admission that minor pelvic manipulations or operations may at times be responsible for its occurrence.

Relation Between Cervix Cancer Cell Type and Treatment.—An histologic study was made by Pemberton of the type of cell in ninety-six cases of cervix cancer. The proportion between the three cell types in squamous cancer of the cervix was about the same in the different clinical stages of the disease. The order of malignancy of the different cell types progressing from least to most was spinal, adenocarcinoma, transitional and fat spindle. Pemberton states that the type of cell does not indicate whether operation or radium is the better treatment. The cases having more stroma than cancer tissue respond more favorably to either kind of treatment than those in which the conditions are reversed.

Roentgen-Ray Pelvimetry.—A method of roentgen-ray pelvimetry is presented by Thoms, by means of which the dimensions of the superior strait can be measured with remarkable accuracy. The method is said to be applicable in any stage of pregnancy, and it does not require elaborate apparatus. A technic is also described which makes it possible to obtain lateral views of the pelvis, showing the contour of the sacrum and the relation of the presenting part of the superior strait. Attention is drawn to the value of such information in the diagnosis of the less severe grades of rachitic pelvic deformity. The importance of the two methods as aids in the study of contractions of the pelvis is emphasized.

Trial Labor in Treatment of Contracted Pelvis.—Bailey analyzes 477 cases of contracted pelves representing 5.2 per cent of all cases. As far as possible, the treatment of the patients was by trial labor, and in Bailey's opinion, the success of the procedure depended on the fact that the low flap cervical section was done in cases in which the head did not engage. There were fifty-nine cesarean sections with no maternal deaths and three infant deaths. In twenty-two elective sections, there were fourteen low flap operations. Four patients had postoperative temperature. The wound was infected in three cases. Vaginal examinations were made in two cases, but with no morbidity in the postpartum period. Thirty-seven patients had a section following trial labor and of these, thirty-five were operated on by the low flap method. The wound healed by primary union in twenty-eight cases with postoperative temperature; in two cases it broke down, and in seven cases there were stitch abscesses. Only one of the patients had a serious postpartum condition. As an end-result of trial labor, in the 477 cases, the maternal death rate was 0.42 per cent, and the infant death rate was 4.19 per cent.

Ligation of Pelvic Veins in Thrombophlebitis.—Huggins reviews twelve cases in which ligation of the veins was done in the treatment of puerperal thrombophlebitis. All patients operated on within a reasonable time after the onset of infection, with one exception, recovered. In the fatal cases, the patients had all been sick for periods of from five to eight weeks, and at the time of the operation had other complications, such as pneumonia and infections of the urinary tract; they were all in poor condition. In performing the operation, the veins are ligated through a transperitoneal incision; they need not be excised. The ligature is placed distal to the point of infection, if possible. If this is impossible, good will be secured by a ligation of the vein somewhat short of the extreme extension of the infection, because, when the blood current is interrupted, the infection will cease to spread and will remain localized. Huggins has ligated both ovarian veins, and in one instance, the vena cava. There are few apparent symptoms from such a procedure except for a moderate degree of swelling of the legs, which disappears. This

is also true of ligation of both the ovarian veins and the common iliacs. Huggins advocates ligating the common in preference to the internal iliac, as it is easier and can be done more quickly. The results, so far as untoward symptoms are concerned, are no different. The mortality in the entire series of twelve cases was 33⅓ per cent. The mortality under expectant treatment of this same class of cases was not less than 66 per cent.

Induction of Labor by Means of Pituitary Extract.—Scott reports on his efforts to ascertain how many obstetricians are using pituitary extract to induce labor, either with or without other drugs, their opinions of the value of such a method and his own experience with the procedure in several hundred cases. He concludes that there is no method of inducing labor that is absolutely free from danger to either mother or child. The induction of labor by the use of pituitary extract after castor oil and quinine is practically free from maternal danger if properly used. This method has some dangers for the child even with the best of technic, and this danger is considerably increased by improper use of the method. This danger consists for the most part of the evil results of the occasional tetanic contractions which result, but such contractions can usually be controlled by the administration of an anesthetic. There is almost unanimous opinion among those using this method that the original dosage as proposed by Watson is too large, and they either use smaller doses throughout, or start with smaller doses and increase slowly. The method is being used much more extensively than one would gather from the literature, and those who have used it in a considerable number of cases are, for the most part, continuing to employ and have confidence in it.

Liver Function Tests in Toxemias of Pregnancy.—Phenoltetrachlorphthalein and bromsulphalein are regarded by King as of definite value as liver function tests in the toxemias of pregnancy. They are of service in differentiating between the nephritic and preeclamptic types of toxemia. The degree of retention seems to correspond with the clinical observations. The van den Bergh test is uniformly negative in nephritic toxemia, preeclamptic toxemia and eclampsia, except in an occasional case with excessive bilirubin in the blood caused by some independent condition. In hyperemesis gravidarum, on the contrary, it appears to be constantly positive for bilirubin of the nonobstructive type. This apparently substantiates the theory that the pathology of toxemic vomiting of pregnancy is essentially different from that of the toxemias of late pregnancy. The Widal hemoclastic crisis test does not appear to be of value as a liver function test in pregnancy. The Fouchet test for bilirubin in the blood serum has proved unreliable in a small series of cases of toxemia of pregnancy. The same is true of the Ehrlich and Schlesinger tests for pathologic amounts of urobilinogen and urobilin in the urine. The dye tests, as well as the studies on the blood sugar and on the storage and mobilization of glucose and levulose, indicate that in the toxemias peculiar to pregnancy there is definite impairment of the liver function.

Cauterization of Cervix Before Hysterectomy.—Subtotal hysterectomy is a less formidable operation than total hysterectomy, but has the disadvantage of leaving, too often, a diseased cervix. Cashman asserts that cauterization of the cervix, preliminary to subtotal hysterectomy, destroys the infected cervical tissue, and makes total hysterectomy unnecessary in benign conditions of the uterus.

American Journal of Roentgenology and Radium Therapy, New York

16: 303-404 (Oct.) 1926

Roentgenologic Diagnosis of Liver Abscess with or Without Subdiaphragmatic Abscess. H. K. Pancoast, Philadelphia.—p. 303.
Roentgenography of Cavity of Uterus and Fallopian Tubes; in Sterility. R. L. McCready and E. J. Ryan, New York.—p. 321.
Sella Turcica. A. Schüller, Vienna.—p. 336.
*Radium Necrosis of Bone. D. B. Phemister, Chicago.—p. 340.
*Effect of Roentgen Rays on Glandular Activity: V. External Pancreatic Secretion. B. H. Orndoff, J. I. Farrell and A. C. Ivy, Chicago.—p. 349.
Rôle of Roentgenology in Medical Education. T. W. Todd, Cleveland.—p. 355.
Present Problems in Deep Roentgen-Ray Therapy. R. E. Fricke, Baltimore.—p. 359.

Radium Necrosis of Bone.—The action of radium on bone, when applied locally, according to Phemister, is similar to that on other tissues in that it results in necrosis if the irradiation is of sufficient duration and magnitude. However, the difficultly penetrable lime salts of the bone restrict the necrosis to a smaller area than that following an equivalent irradiation of soft parts. By producing necrosis in this way, the dead bone is left with its attachments to the living bone undisturbed. Consequently, it continues to function mechanically as a part of the skeletal structure. Since much of the skeleton is deep-seated, it is possible by means of buried radium to kill extensive areas of bone without injury to the external layers of the overlying soft parts, and thus to keep the necrotic field free from infection. Bone killed by radium in the treatment of tumors is gradually replaced by new bone if it remains free from infection and functions in the support of the part. When a small necrotic portion borders on an articular surface, it does not become detached and move freely into the joint as a joint mouse.

Effect of Roentgen Ray on Glandular Activity.—The effect of three different doses of roentgen rays on the secretion of the pancreas has been studied by Orndoff et al. in dogs prepared with a chronic fistula of a portion of the pancreas, so placed that it alone was exposed to the action of the roentgen rays. In one experiment, one-tenth of a human erythema dose increased the concentration of lipase and trypsin, but did not affect the quantity of the secretion. In two animals, one-half of a human erythema dose increased the quantity of the secretion and the total output of ferments. In a third animal, this dose increased the quantity of secretion and total output of ferments the first week after exposure, following which the quantity of secretion and the total output of lipase was decreased and the total output of trypsin remained normal. One human erythema dose decreased the quantity of secretion and the total output of ferments in two animals for two weeks after exposure. One animal returned to normal forty-seven days after exposure, the total output of ferments being greater than normal. It has been pointed out that although the pancreas may be temporarily injured by one human erythema dose, its power to regenerate may compensate for the injury.

American Journal of Surgery, New York

1: 177-244 (Oct.) 1926

*Gas Bacillus Infection. I. M. Gage, New Orleans.—p. 177.
Surgical Treatment of Certain Massive Blastomycotic Skin Lesions. R. H. Jackson, Madison, Wis.—p. 185.
Jejunostomy. C. G. Heyd, New York.—p. 188.
Two Clamp Method of Removing Hemorrhoids. T. L. Deavor, Syracuse.—p. 193.
*Genito-Urinary Symptoms in Appendicitis. N. Blaustein, New York.—p. 198.
*Sciatica. A. E. Hertzler, Halstead, Kan.—p. 200.
Postoperative Treatment of Abdominal Cases. J. Selinger, New York.—p. 208.
Surgical Considerations of Public Health and Preventive Medicine. J. D. Hancock, Louisville, Ky.—p. 216.
*Duodenal Ulcer; Persistent Hemorrhage. F. C. Warnshuis, Grand Rapids, Mich.—p. 219.
Cancer Symposium at Lake Mohonk. W. B. Coley, New York.—p. 222.

Gas Bacillus Infection.—Gage reports four cases. In one, the diagnosis was not made until after death. The infection was of the fulminating type, and was evidently introduced by contamination from the soil. In two cases, the obvious source of infection was the wadding from the shell which was imbedded in the biceps muscle. Each case showed typical group gangrene, and in each the laboratory report was suppurative myositis, with the culture positive for *Bacillus welchii*. In the fourth case, the clinical picture was somewhat confused, owing to the fact that the gas bacillus infection developed in a field which already showed ischemic gangrene. The source of the infection was at first impossible to trace, but later was discovered to be the woolen suit which the patient was wearing, cultures from which gave positive results, as did animal inoculation.

Genito-Urinary Symptoms in Appendicitis.—According to Blaustein, the following genito-urinary symptoms may occur in appendicitis: Frequency of micturition, pain on micturition, retention of urine, difficulty in urination, tenderness on

pressure in the right costovertebral angle, hematuria, pain in either or both testes and retraction of the right testis.

Sciatica.—Hertzler asserts that lower back pains of a certain type are best explained on the theory that there is a synovitis of the sacro-iliac joint. Sciatica often follows such conditions, and since the sciatic nerve roots lie over this joint one is warranted in hypothecating an irritation of the nerve by the joint inflammation. The sciatic nerve cannot be stretched by manipulating the thigh. The injection of a 1 per cent solution of quinine and urea hydrochloride Hertzler regards as a specific for sciatica.

Treatment of Persistent Hemorrhage in Duodenal Ulcer.—In the case reported by Warnshuis, the patient gave a history of ulcer of several years' duration. He had acute hemorrhages, arrested by withholding all liquids from stomach, which recurred when feeding was resumed or following transfusions. These repeated hemorrhages occasioned a grave state of anemia when operative intervention was undertaken. At operation, on opening the duodenum, a denuded or bleeding vessel could not be discovered. An old scar was excised, the lumen closed, and a posterior gastro-enterostomy was done. The attending acute gastric dilatation responded to frequent lavages. The patient experienced a temporary mental derangement by reason of the acute cerebral anemia. Approximately twelve days after the first operation, an intestinal obstruction occurred necessitating a second operation. After six months, the patient was symptom-free and was working. The anemia had disappeared.

American Review of Tuberculosis, Baltimore

14: 347-484 (Oct.) 1926

*Contagion of Tuberculosis. E. L. Opie and F. M. McPhedran, Philadelphia.—p. 347.
*Exposure of Children to Tuberculosis. L. F. Richdorf and A. E. Hetzler, Minneapolis.—p. 420.
Tuberculosis in Infancy and Childhood: VII. Evidences of Primary Foci. E. Leggett, D. Hutchinson and J. A. Myers, Minneapolis.—p. 428.
Id.: VIII. Serial Examinations of Children with Pulmonary Lesions. D. Hutchinson and J. A. Myers, Minneapolis.—p. 437.
Id.: IX. Incidence of Physical Defects and Nontuberculous Disease. E. Nelson and J. A. Myers, Minneapolis.—p. 448.
Id.: X. Tuberculous Infection as Revealed by Intracutaneous Test. F. E. Harrington and J. A. Myers, Minneapolis.—p. 454.
Id.: XI. Positive Tuberculin Skin Reactions Under Two Years of Age. H. F. Wahlquist and J. A. Myers, Minneapolis.—p. 461.
Id.: XII. Lung Hilum in Children Examined for Tuberculosis. H. A. Burns and J. A. Myers, Minneapolis.—p. 468.
*Blood Chemistry Changes in Children Produced by Exposure to Alpine Lamp. E. M. Greisheimer and A. W. Arnold, Minneapolis.—p. 479.

Contagion of Tuberculosis.—The contagion of phthisis has been the subject of controversy ever since the beginning of recorded medical history. The opinion that every person in congested centers of population is infected with tuberculosis is widely accepted; but knowledge concerning the spread of this nearly universal latent infection is vague, and its relation to manifest disease is almost wholly unknown. As bearing on this phase of tuberculosis, Opie and McPhedran have made a careful study of latent tuberculosis in children and in adults. It is evident that when latent tuberculosis is taken into consideration, tuberculosis exhibits the characters of a contagious disease and affects all children of households within which some member, suffering with tuberculosis, scatters tubercle bacilli. Recognition of latent apical tuberculosis has demonstrated that tuberculous infection is transmitted to adults and to adolescent children, and has shown that approximately one half of the partners of husbands and wives with open tuberculosis are infected after marriage. Duration of exposure to open tuberculosis is an important factor in determining the character and severity of the resulting infection; in instances of recognizable tuberculosis of tracheobronchial lymph nodes, the average duration of contact with tuberculosis has been approximately four and one-half years, and in instances of latent apical tuberculosis nearly twice as much. Opie and McPhedran urge that dispensaries for the care and control of tuberculosis should be organized, so that spread of latent infection within the family may be recognized and prevented. All adults in whom latent apical tuberculosis has been recognized should receive the same care as patients with arrested phthisis.

Exposure of Children to Tuberculosis.—Richdorf and Hetzler urge that thorough inquiry be made always with regard to exposure to tuberculosis. The history should record the following data: (*a*) The existence of the disease in some person or persons with whom the patient has been in contact. (*b*) The possibility of the excretion of the tubercle bacillus from such persons. (*c*) The type and duration of contact between the patient and the persons having the disease. In a group of 300 children studied, evidences of infection with tuberculosis occurred twice as often in the exposed as in the nonexposed group. Children showing primary foci in roentgenograms of the lungs usually, but not always, gave a positive Pirquet test.

Changes in Blood Chemistry Caused by Alpine Lamp.—It would seem from the studies made by Greisheimer and Arnold that the alpine lamp treatment in children has little, if any, effect on the acid-soluble phosphorus or on the calcium of the plasma.

Arkansas Medical Society Journal, Little Rock

23: 71-84 (Oct.) 1926

Cholecystitis. A. Watkins, Little Rock.—p. 71.
Cholecystography. D. A. Rhinehart and B. A. Rhinehart, Little Rock.—p. 75.

Boston Medical and Surgical Journal

195: 781-842 (Oct. 21) 1926

Control of Communicable Diseases Prevalent in Massachusetts. Study of Mortality Due to Them During Past Seventy-Five Years. E. G. Huber, Washington, D. C.—p. 790.
Phlegmonous Gastritis. J. S. Lawrence, Nashville, Tenn.—p. 800.
Bladder Symptoms from Congenital Deformities with Associated Nerve Lesions: Three Cases. F. H. Colby, Boston.—p. 804.
Malignant Growths of Lower Urinary Tract. D. W. MacKenzie, Montreal.—p. 811.

195: 843-888 (Oct. 28) 1926

Miscarriage. J. Rock, Boston.—p. 843.
*Muscular Cramp: Physiologic Cure. G. W. Fitz, Peconic, N. Y.—p. 854.
Why We Use "Drops" in Fitting Glasses. D. W. Wells, Boston.—p. 857.
Control of Communicable Diseases Prevalent in Massachusetts with Study of Mortality Due to Them During Past Seventy-Five Years. E. G. Huber, Washington, D. C.—p. 859.

Carbon Dioxide Retention in Treatment of Muscle Cramp.—The method of treatment of cramp seizures by carbon dioxide retention has been found by Fitz invariably effective in approximately 100 applications to cramps of various muscles of the thigh, leg, foot, abdominal wall and diaphragm. The change in the reaction of the blood toward acidity, through retention of carbon dioxide by breath-holding and rebreathing, stops idiopathic cramp. An immediate cause of cramp is, therefore, a relative alkalosis, possibly of very ephemeral duration. Alkalosis seems to permit the lower motor nerve cells to act independently of their controls, in continuing muscular contractions in opposition to inhibitory stimulation normally effective to produce relaxation. Susceptibility to cramp may well mean (*a*) an over-active respiratory control which favors the production of alkalosis by hyperpnea, or, (*b*) instability of neuromuscular elements which causes oversensitiveness to slight transitory changes in blood reaction, or, (*c*) both of these acting together. Carbon dioxide retention furnishes an easy method of testing tetanic seizures to determine whether alkalosis is an associated factor of importance.

Georgia Medical Association Journal, Atlanta

15: 378-414 (Oct.) 1926

Feeding Normal Infant. R. G. McAliley, Atlanta.—p. 378.
Adenoids and Tonsils in Childhood; Plea for Conservation. A. J. Waring, Savannah.—p. 384.
Toxin-Antitoxin. B. Bashinski, Macon.—p. 386.
Plea for More Exact Diagnosis. R. C. Maddox, Rome.—p. 391.
Inseparability of Psychic and Physical in Diagnosis and Treatment. W. W. Young, Atlanta.—p. 392.
Shall Cancer be Treated by Radium or Surgery? C. C. Harrold, Macon.—p. 394.
Milk Injections in Acute Pelvic Infections. J. F. Denton, Atlanta.—p. 396.
Eye Inflammation in New-Born. B. H. Minchew, Waycross.—p. 398.

Johns Hopkins Hospital Bulletin, Baltimore

39: 271-370 (Nov.) 1926

*Placentation in Quadruplet and Triplet Pregnancy. J. W. Williams, Baltimore.—p. 271.
Menopause: I. Basal Metabolism After Artificial Menopause. J. T. King, Jr., Baltimore.—p. 281.
*Significance of Gastric Anacidity. C. S. Keefer and A. L. Bloomfield, Baltimore.—p. 304.
Place of R.-J.-H. Dutrochet in Development of Cell Theory. A. R. Rich, Baltimore.—p. 330.

Placentation in Multiple Pregnancy.—Williams describes the placental relations in a case of quadruplets, as well as in six cases of triplet pregnancy. The former is said to occur approximately once in a half million labors; the latter, about once in 6,500 labors.

Significance of Gastric Acidity.—In a miscellaneous group of hospital patients, Keefer and Bloomfield have been unable to discover any definite correlation between anacidity and any other factor except age, nor has it been possible to prove that any digestive symptoms are due to anacidity in itself.

Journal of Clinical Investigation, Baltimore

3: 1-202 (Oct.) 1926

Effect of Digitalis on Cardiac Output; Action in Heart Disease. T. R. Harrison and B. W. Leonard, Nashville, Tenn.—p. 1.
*Concentration of Electrolytes and Nonelectrolytes in Serum During Lobar Pneumonia. F. W. Sunderman, J. H. Austin and J. G. Camac, Philadelphia.—p. 37.
*Experimental Study of Chronic Aortic Regurgitation in Dogs. H. C. Bazett and J. Sands, Philadelphia.—p. 65.
*Significance of Electrocardiograms of Low Voltage. H. B. Sprague and P. D. White, Boston.—p. 109.
*Kidney Function in Pneumonia. J. F. McIntosh and H. A. Reimann, New York.—p. 123.
*Synovial Fluid of Patients with Arthritis and Syphilis. A. M. Chesney, J. E. Kemp and F. H. Baetjer, Baltimore.—p. 131.
Action of Ammonium Chloride and Organic Mercury Compounds. N. M. Keith and M. Whelan, Rochester, Minn.—p. 149.

Electrolytes in Serum During Pneumonia.—During the active infection in lobar pneumonia, Sunderman et al. found a decrease in the electrolytes in the serum and a proportional decrease in the freezing point depression. After the crisis, the electrolytes returned to the normal range, whereas the freezing point depression was increased beyond the normal limits. The ratio of protein to corrected conductivity fluctuates about an average value which remains approximately the same throughout the entire infection.

Experimental Study of Chronic Aortic Regurgitation.—Chronic aortic regurgitation produced experimentally in dogs by Bazett and Sands was followed immediately by a diminution in the size of the heart shadow, though later this shows a gradual increase. The pulse rate was raised immediately as the result of the lesion, but the change was rarely sufficient to account completely for the diminution observed in the heart shadow. The pulse rate never returned to its previous low level, and however fit the animal becomes, a relatively fast pulse appears to be advantageous. The total lack of symptoms in most cases (except when infection was present) was astonishing, and the ability to do work was often very great, though probably lessened as the result of the operation.

Significance of Electrocardiograms of Low Voltage.—A study was made by Sprague and White of fifty-seven patients in whom electrocardiograms showed that the Q-R-S deflection was not greater than 5 mm. from the base line in any lead. The electrocardiographic and clinical results are correlated. Low voltage was found in forty-four of these fifty-seven cases related to two conditions: (*a*) myocardial failure from arteriosclerosis, thirty-four cases, (*b*) hypothyroidism, ten cases. It has also occurred in severely toxic or terminal myocardial states from rheumatic, syphilitic or hypertensive heart disease, mediastinopericarditis, leukemia, and subacute bacterial endocarditis. In one case, it was unexplained and was not incompatible with good health, but occurred in a young woman with complete heart block. In the entire series, exclusive of the hypothyroid cases, only nine patients were able to carry on reasonable activity, but of these, two had coronary occlusion and one had rheumatic heart disease with mitral stenosis. Excluding the temporary effect in hypothyroidism, low voltage has never been found in records from normal hearts, hence it is a condition of diagnostic and prognostic importance in forming an opinion of the myocardial ability of any person.

Kidney Function in Pneumonia.—The kidney function was studied by McIntosh and Reimann in thirteen cases of pneumonia. They found that during the course of a lobar pneumonia, the kidneys frequently show a period of increased functional ability. This period usually begins before the crisis, and lasts until several days after it. In the cases studied, the hyperfunction was shown by an increased urea concentration index in six cases, by an increased phenolsulphonphthalein output in seven cases, and by one or the other test in nine cases. A moderate depression of kidney function was observed in four cases; this depression was found sometimes before, and sometimes after the crisis. Serious impairment of kidney function was not encountered.

Synovial Fluid in Arthritis and Syphilis.—Ten cases of arthritis occurring in patients with clinical or serologic evidence of syphilis were studied by Chesney, Kemp and Baetjer with reference to (*a*) abnormalities of the synovial fluid, (*b*) presence of treponemes or other micro-organisms in the synovial fluid as determined by rabbit and guinea-pig inoculation and by culture, (*c*) response to antisyphilitic treatment and (*d*) roentgenologic observations. The cases represented various stages in the course of the infection, including two patients with tabes dorsalis and Charcot joints. From the response to treatment, the arthritis was regarded as syphilitic in origin in five, or one half of the cases. From the synovial fluid of three of these five patients, strains of *Treponema pallidum* virulent for rabbits were obtained by inoculation of animals of that species. In four of these five, the synovial fluid showed a relatively high percentage of lymphocytes and mononuclear cells combined. No roentgenologic observations significant of syphilis were encountered in these patients. The clinical data are reported in detail.

Journal of Experimental Medicine, Baltimore

44: 439-580 (Oct.) 1926

VI.: Hemolytic Streptococcus. Antigenic Relationship Between Strains of Scarlatinal and Erysipelas Groups. F. A. Stevens and A. R. Dochez, New York.—p. 439.
*Effects of Light on Normal Rabbits. I.: Organic Reaction. L. Pearce and C. M. Van Allen, New York.—p. 447.
*Id.: II. Organ Weights. L. Pearce and C. M. Van Allen, New York.—p. 461.
Id. III. Analysis of Organ Weights. L. Pearce and C. M. Van Allen, New York.—p. 483.
Chemical Nature of Substances Required for Cell Multiplication. A. Carrel and L. E. Baker, New York.—p. 503.
Autoplastic Thymus Transplants: II. Regeneration of Reticulum Cells and Formation of Hassall's Corpuscles. H. L. Jaffe, New York.—p. 523.
*Etiology of Oroya Fever: II. H. Noguchi, New York.—p. 533.
*Relation of Bacterium Pneumosintes to Influenza. M. W. Hall, Washington, D. C.—p. 539.
*Nature of Toxin-Antitoxin Flocculation Phenomenon. J. J. Bronfenbrenner and P. Reichert, New York.—p. 553.
*Experimental Glomerulonephritis Induced in Rabbits with Endotoxic Principle of Streptococcus Scarlatinae. C. W. Duval and R. J. Hibbard, New Orleans.—p. 567.

Effects of Light on Normal Rabbits.—A group of rabbits kept under conditions of constant light that had none of the shorter ultraviolet rays, and another group kept in constant darkness for from two to twelve weeks were observed by Pearce and Van Allen and subjected to postmortem examination for the purpose of determining the effect of these environmental conditions on general body health and the weights of organs. It was found that the general health of the rabbits was not impaired by the artificial light or the exclusion of light. The gain in body weight which occurred in all groups was especially marked in the case of those kept under conditions of constant light. The incidence of spontaneous disease recognizable clinically during the experiment was extremely low and of a mild character, and it did not obviously disturb the health of the animal. It was found at postmortem examination, on the other hand, that 59.3 per cent of the rabbits caged indoors, that is in the light, dark, or unaltered rooms, and 58.3 per cent of those recently brought to the laboratory had visible lesions of some kind. The great majority of these lesions, however, were of a

slight grade, and none appeared to have any deleterious effects on the general physical state of the animals.

Relation Between Light and Physical State.—The results of the experiments made by Pearce and Van Allen support the conception that there is a relationship between light and the physical state of the animal organism which may be expressed in the concrete form implied by the trend or direction of organ weight.

Etiology of Oroya Fever.—Fifteen specimens of citrated blood from seven monkeys infected with *Bartonella bacilliformis* were kept at 4 C. for periods of from twenty-four hours to 152 days, and at the end of each period were tested by Noguchi for viability by the cultural method. All yielded cultures, although there was a considerable reduction in the number of living organisms, as shown by titration. The data presented suggest that it may be fruitful to make a study by cultural methods of pathologic material brought from distant parts of the world, even when many days or weeks have elapsed since it was procured.

Relation of Bacterium Pneumosintes to Influenza.—Hall states that nasopharyngeal washings from a case of epidemic influenza have proved capable of initiating a pathologic change in rabbits and in guinea-pigs. From one such animal, in the second passage of the virus, an anaerobic coccobacillus, corresponding in all respects to *Bacterium pneumosintes*, was isolated by the method employed by Olitsky and Gates. This organism also proved capable of initiating the pathologic change in animals found after inoculation with influenzal material. The observation of Olitsky and Gates that the presence of this organism in the lungs of experimental animals predisposes to pulmonary localization of other bacteria with the production of definite pneumonic lesions has been confirmed.

Nature of Toxin-Antitoxin Flocculation Phenomenon.—Bronfenbrenner and Reichert conclude that the toxin-antitoxin flocculation is a specific bacterial precipitation phenomenon.

Experimental Glomerulonephritis.—According to Duval and Hibbard, the active toxic principle of hemolytic *Streptococcus scarlatinae* for rabbits is intimately associated with the protein of the bacterial cell, and is not given off in the artificial medium during the growth activity of the organism, indicating, therefore, its endotoxic character. The experimentally induced nephritic lesions were analogous in kind and variety to those of acute scarlatinal nephritis in man, including the "epithelial crescent" formation, hyaline thrombi of glomerular capillaries, hemorrhage into capsular space and necrosis of capillary tufts.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

29: 1-557 (Oct.) 1926

Curarine. H. H. Meyer, Vienna.—p. 1.
Optical Isomers: VIII. Influence of Configuration on Activity of Tropeines. A. R. Cushny, Edinburgh.—p. 5.
Some Effects of Betaine Esters and Analogous Compounds on Autonomic Nervous System. R. Hunt and R. R. Renshaw, Boston.—p. 17.
Pharmacology of Posture and of Labyrinthine Reflexes: Pyramidon, Veramon and Veronal; Quantitative Evaluation of Stimulant and Depressive Action on Central Nervous System of Mammals. R. Magnus, Utrecht, Holland.—p. 35.
Pharmacology of Denervated Mammalian Muscle: I. Nature of Substances Producing Contracture. H. H. Dale and H. S. Gasser, London.—p. 53.
*Chemotherapy of Neurosyphilis and Trypanosomiasis. A. S. Loevenhart and W. K. Stratman-Thomas, Madison, Wis.—p. 69.
Astringent Action of Aluminum Acetate. W. Straub, Munich.—p. 83.
Reaction Between Serum and Alkaloids. R. Beutner, New Orleans.—p. 95.
*Biologic Significance of Cystine and Glutathione: II. Sensitization of Isolated Intestinal Segment to Cysteine. C. Voegtlin and H. A. Dyer, Washington, D. C.—p. 105.
Is Mercuric Sulphide Toxic? H. Niklasson and C. G. Santesson, Stockholm.—p. 117.
*Effects on Mammals of Administration of Excessive Quantities of Water. L. G. Rowntree, Rochester, Minn.—p. 135.
Heat Production of Nerve. A. V. Hill, London.—p. 161.
Cardiac Output of Dog: II. Influence of Atropine and Carbon Dioxide on Circulation of Unanesthetized Dog. E. K. Marshall, Jr., Baltimore.—p. 167.
Pituitary (Posterior Lobe) Principle in Circulating Blood. A. Krogh, Copenhagen.—p. 177.
*Early Cirrhosis of Liver Produced in Dogs by Carbon Tetrachloride. P. D. Lamson and R. Wing, Baltimore.—p. 191.
Mechanism of Bradycardia Following Injection of Digitalis, Strophanthin and Cymarine. J. F. Heymans and C. Heymans, Ghent.—p. 203.
β-Iminazolyl-4 (or 5)-Pyruvic Acid. G. Barger and C. P. Stewart, Edinburgh.—p. 223.
Concentration of Vitamin B.: III. P. A. Levene and B. J. C. van der Hoeven, New York.—p. 227.
Relation of Depressant and Stimulant Actions of Epinephrine on Frog Heart. T. Sollmann and O. W. Barlow, Cleveland.—p. 233.
Toxicology of Oxalic Acid and Oxalates. E. Rost, Berlin.—p. 257.
*Theory of Anesthesia and Problem of Toxicity. V. E. Henderson and W. E. Brown, Toronto.—p. 269.
Studies on Quinine. R. A. Hatcher and S. Weiss, New York.—p. 279.
*Action of Phenol on Circulatory System. J. W. C. Gunn, Cape Town, South Africa.—p. 297.
New Classification of Mycetismus (Mushroom Poisoning). W. W. Ford, Baltimore, Md.—p. 305.
Mode of Action of Potassium Chloride on Muscles. A. J. Clark, London.—p. 311.
Action of Histamine on Heart and Coronary Vessels. J. C. Gunn, Oxford.—p. 325.
Rate of Filtration of Protein Solutions Particularly Mucin. S. Amberg and F. Sawyer, Rochester, Minn.—p. 339.
Pharmacology of Purkinje's Fibers. M. Ishihara and E. P. Pick, Vienna.—p. 355.
Blood Studies in Dogs After Suprarenalectomy. G. N. Stewart, Cleveland.—p. 373.
Value of Solution of Glucose in Maintaining Acidbase Equilibrium of Blood in Pregnant Animals: I. Effect of Period of Ether Anesthesia in Pregnant Animals. Protection Conferred by Solution of Glucose. W. deB. MacNider, Chapel Hill, N. C.—p. 381.
Antidiuretic Effects of Caffeine Group in Dog. G. B. Wallace and E. J. Pellini, New York.—p. 397.
Physiologic Assay of Preparations of Digitalis. E. Knaffl-Lenz, Vienna.—p. 407.
Heat Regulation and Water Exchange: XI. Blood and Plasma Changes in Cocaine and B. Coli Fevers and Aspirin Antipyresis. H. G. Barbour, Louisville, Ky.—p. 427.
Physicochemical Study of Antagonistic Action of Magnesium and Calcium Salts and Mode of Action of Some Analgesic Drugs. A. D. Hirschfelder and E. R. Serles, Minneapolis.—p. 441.
Variations in Blood Pressure Induced by Repeated Injections of Extracts of Posterior Lobe of Pituitary Gland. E. M. K. Geiling and D. Campbell, Baltimore.—p. 449.
*Phyto-Pharmacologic Study of Pernicious Anemia. D. I. Macht, Baltimore.—p. 461.
*Pharmacologic Action of Mercury in Organic Combination. D. E. Jackson, Cincinnati.—p. 471.
Permeability of Liver to Dyes in Shock Conditions and Under Influence of Certain Agents. P. J. Hanzlik and F. de Eds, San Francisco.—p. 485.
Combining Power of Proteins with Rose Bengal. S. M. Rosenthal, Montreal.—p. 521.
Infra-Red Absorption Spectra of Alkaloids: I. Tropan Derivatives. F. K. Bell, Baltimore.—p. 533.

Chemotherapy of Neurosyphilis and Trypanosomiasis.—Loevenhart and Stratman-Thomas discuss the relation of the chemical constitution of a series of twelve drugs to their activity in neurosyphilis and trypanosomiasis, with especial reference to tryparsamide. They have been unable to find any type of laboratory experimentation from which prediction can be made regarding the therapeutic power of such a drug as tryparsamide in neurosyphilis. Animal experimentation in this field shows whether clinical studies are justifiable, and the type of pathologic reaction the drug may produce in toxic dosage. Clinical investigation alone can indicate its value in neurosyphilis.

Sensitization of Jejunum to Cysteine.—Experiments are described by Voegtlin and Dyer which indicate that it is possible to sensitize the jejunum of the rabbit to an amino-acid, i. e., cysteine. The chemical mechanism of this sensitization and of the shocklike effect following subsequent exposure to cysteine is discussed.

Effect of Administration of Excessive Quantities of Water.—In man and other mammals, water ingested in excess of the ability of the organism to excrete it leads to water intoxication. Rowntree says that this can be prevented, alleviated or cured by the timely intravenous administration of a hypertonic solution of sodium chloride.

Carbon Tetrachloride Produces Liver Cirrhosis.—Lamson and Wing assert that the continued administration of carbon tetrachloride alone, in small or large doses, or given together with alcohol, produces lesions, all of which are of the same type and of approximately the same severity. The lesions found are those of early cirrhosis of the liver, and it is believed from their appearance that a more prolonged treat-

ment with this drug will produce a true Laënnec cirrhosis with circulatory obstruction.

Toxicity of Anesthetics.—A discussion of the toxicity of anesthetic gases is given by Henderson and Brown. Three types are distinguished: (*a*) due to changes in the anesthetic in the body; (*b*) due to secondary effects produced in metabolism; (*c*) inherent in the specific anesthetic.

Action of Phenol on Circulatory System.—According to Gunn, the fall of blood pressure after large doses of phenol is due to depression of the heart muscle and dilatation of the blood vessels. With small doses, the increase of blood pressure is due to stimulation of the heart muscle or of the vasomotor center.

Phytopharmacologic Study of Pernicious Anemia.—A phytopharmacologic study by Macht of blood specimens from pernicious anemia revealed that the serum in all such cases is very much more toxic than normal human blood serum. Such a toxicity is not shown by blood specimens examined from all other kinds of anemias or diseases of the blood. These observations are said to speak in favor of a toxic etiology of pernicious anemia. The phytopharmacologic test has been found useful in the differential diagnosis of pernicious anemia.

Pharmacologic Action of Mercury in Organic Combination.—Jackson says that the best clinical results, so far as diuresis is concerned, appear to be obtained by organic mercury compounds in cases of cardiac dropsy without renal involvement. But many patients showing undoubted renal disturbances have been greatly benefited by these compounds, which may often act after all other measures have failed. There appears to be a certain amount of danger inherent in the use of all these compounds.

Nebraska State Medical Journal, Norfolk

11: 409-448 (Nov.) 1926

Basal Metabolism and Blood Chemistry. J. M. Mayhew, Lincoln.—p. 409.
Pathology of Goiter. C. Emerson, Lincoln.—p. 411.
Medical Management of Goiter. R. W. Bliss, Omaha.—p. 416.
Roentgen-Ray Treatment of Goiter. E. W. Rowe, Lincoln.—p. 419.
Nutrition: Pathology of Malnutrition Acidosis. V. E. Levine, Omaha.—p. 427.
Ulnar Nerve Paralysis Secondary to Fracture of Trochlea. R. R. Best, Omaha.—p. 433.
Surgical Treatment of Chronic Ulcerative Colitis. J. M. Willis, McCook.—p. 437.

New York State Journal of Medicine, New York

26: 883-920 (Nov. 1) 1926

Preventive Medicine. M. Nicoll, Jr., Albany.—p. 883.
*Subdiaphragmatic Abscess. A. M. Dickinson, Albany.—p. 886.
*Measurement of Intracranial Pressure; Ventriculometry. K. W. Ney, New York.—p. 891.
Gonococcus Vaginitis of Infants. E. J. Wynkoop and E. O. Boggs, Syracuse.—p. 894.

Subdiaphragmatic Abscess.—Dickinson reports a case of subdiaphragmatic abscess which was secondary to a ruptured appendix located high up in the abdomen. The onset of the abscess was insidious, being recognized only after repeated chest examinations. The roentgen-ray examination was of great value in making the diagnosis. The development of a fistulous communication between the subphrenic abscess and the lung was a very important factor in the recovery of this patient.

Value of Ventriculometry.—Ventriculometry, combined with Dandy's method of ventriculography, has served Ney as an admirable supplement to careful neurologic examinations, and has made possible a diagnosis in many obscure conditions in which clinical neurology alone, without these aids, had been seriously handicapped. Inhalation anesthesia greatly increases intracranial pressure, hence ventriculometry will furnish reliable readings only when done under local anesthesia. Ney says that persistent vomiting, headache, visual disturbance, or decreased or augmented psychomotor manifestations should always suggest the possibility of abnormal intracranial pressure changes. Operations on the nasal accessory sinuses for papilledema are never justified until the absence of an increased intracranial pressure has been definitely determined.

Radiology, St. Paul

7: 279-370 (Oct.) 1926

Effect of Roentgen Rays on Vitamin Needs of Organism and Cancer. M. T. Burrows, L. H. Jorstad and E. C. Ernst, St. Louis.—p. 279.
Radiant Energy as Applied to Medical Uses. C. I. Reed, Dallas, Texas.—p. 292.
Roentgen Ray in Cardiac Diagnosis. G. E. Knappenberger, Kansas City, Mo.—p. 297.
Technic of Roentgenologic Examination of Temporal Bone. E. G. Mayer, Vienna.—p. 306.
Pulmonary Fibrosis. C. R. Orr and W. F. Jacobs, Buffalo.—p. 318.
Pneumoperitoneum in Gynecology. I. F. Stein and R. A. Arens, Chicago.—p. 326.
Radioactive Substances: Treatment of Lingual Cancer by Radiation. J. Muir, New York.—p. 332.
Perthes' Disease. E. G. C. Williams, Danville, Ill.—p. 337.
Barium Plaster Roentgen-Ray Protective Walls for Roentgen-Ray Laboratories. H. N. Beets, Chicago.—p. 340.
Diaphragmatic Hernia: Case. N. J. Nessa, Sioux Falls, S. D.—p. 342.
Gastric Ulcer Demonstrated by Gas-Filled Stomach: Case. E. N. McKee, Los Angeles.—p. 342.

South Carolina Medical Association Journal, Greenville

22: 201-224 (Oct.) 1926

Therapy of Abortion. J. D. Guess, Greenville.—p. 205.
Congenital Absence of Uterus. W. A. Wallace, Spartanburg.—p. 208.
Case of Accidental Tracheotomy. L. O. Mauldin, Greenville.—p. 209.
Physiotherapeutic Measures in Their Relation to General Medicine. C. v. Baumann, Taylor.—p. 209.
Pathologic Examination in Cavernous Sinus Thrombosis. O. J. Dixon, Kansas City, Mo.—p. 215.

Southern Medical Journal, Birmingham, Ala.

19: 771-850 (Nov.) 1926

*Peptic Ulcer vs. Life Insurance Company Ruling. W. G. Morgan, Washington, D. C.—p. 771.
Diabetic Neuritis. W. A. Smith, Atlanta, Ga.—p. 773.
Differential Diagnosis of Chronic Abdominal Conditions, Especially Salpingitis and Appendicitis. L. A. Turley, Oklahoma City.—p. 776.
Electrocardiography: Indications. A. A. Sussman, Baltimore, and A. S. Hyman, New York.—p. 779.
*Mercurochrome in Treatment of Intestinal Protozoan Infections. G. A. Gray, San Jose, Calif.—p. 780.
Age Incidence of Rheumatism. J. R. Snyder, Birmingham, Ala.—p. 782.
Leprosy; Self-Limiting Phase. R. Hopkins, New Orleans.—p. 784.
Charleston County Health Administration. L. Banov, Charleston, S. C.—p. 791.
*Fascial Bands in Treatment of Aneurysm. J. L. Campbell, Atlanta, Ga.—p. 795.
Fractures of Forearm. C. F. Clayton, Fort Worth, Texas.—p. 798.
Fractures About Elbow. C. S. Venable, San Antonio, Texas.—p. 806.
Pancreatitis. A. S. Risser, Blackwell, Okla.—p. 809.
*Diathermy in Treatment of Shock. F. H. Craddock and G. Whetstone, Sylacauga, Ala.—p. 812.
Anatomic Variations of Paranasal Sinuses. H. M. Taylor, Jacksonville, Fla.—p. 814.

Peptic Ulcer and Life Insurance.—From information obtained from eighteen representative life insurance companies, as well as from a survey of medical literature on the subject, and his own personal observations and beliefs, Morgan says it would seem that patients with a history of peptic ulcer are discriminated against by life insurance companies without either a complete or just basis for this discrimination. He further states that medically treated peptic ulcer cases appear to be especially harshly and unjustly ruled against in this regard.

Mercurochrome in Intestinal Infestations.—The final conclusions reached by Gray are: Mercurochrome may safely be administered by mouth in enteric coated capsules. It is the drug of choice in treating *Giardia* infections especially, and is less effective in cases of *Chilomastix davainei*, in dosages ranging from 1½ to 3 grains (0.1 to 0.2 Gm.) from one to four times daily, depending on the susceptibility of the individual patient. The course of administration should be carried out for a period of from fourteen to twenty-four days, at least. It is essential to explain the irritation symptoms to the patient, and to advise him to keep the stool a dark mahogany color for the entire length of the treatment, as a gage that he is receiving an adequate dosage. Each patient's treatment must be individualized, and a sufficient strength of the drug must be used and continued over an adequate period of time, to obtain beneficial results. No harmful or distressing factors occur in the majority of cases treated that should contraindicate this method of therapy.

Treatment of Aneurysms with Fascial Bands.—Personal experience has convinced Campbell that the use of detached fascia bands is the best method of ligating arteries for the cure of aneurysms. He has had perfect results in four cases reported. He calls attention to the fact that in many of these cases, the aneurysms were "lanced" under the impression that they were abscesses.

Diathermy in Treatment of Shock.—Craddock and Whetstone are convinced that diathermy will prove a great asset in the treatment of certain cases of shock, especially when the condition is one of a primary traumatic type without hemorrhage, and when the loss of body heat is one of the predominant symptoms.

Southwestern Medicine, Phoenix, Ariz.

10: 415-468 (Oct.) 1926

Influence of Focal Infection in Relation to Tuberculosis: Myocarditis. C. C. Browning, Los Angeles.—p. 415.
Gallbladder Disease. F. J. Milloy, Phoenix.—p. 424.
Roentgen-Ray Examination of Gallbladder. W. W. Watkins, Phoenix. —p. 428.
Chronic Prostatitis. W. R. Jamieson, El Paso, Texas.—p. 434.
Recent Scarlet Fever Literature. O. H. Brown, Phoenix.—p. 437.

U. S. Naval Medical Bulletin, Washington, D. C.

24: 699-1007 (Oct.) 1926

Medical Tactics in Naval Warfare. W. L. Mann.—p. 699.
Useful Hepatic Function Tests. W. W. Hall.—p. 843.
*Cardiovascular Observations: Electrocardiograms of Men Without Heart Symptoms. D. Ferguson and J. T. O'Connell.—p. 860.
Flight Accelerations and Equilibrium. H. C. Richardson.—p. 874.
Diagnosis of Surgical Disease of Kidney. G. F. Cottle.—p. 880.
*Malignant Disease of Lungs. J. D. Blackwood, Jr.—p. 885.
Diabetic Gangrene of Lower Extremities. H. D. Scarney.—p. 892.
*Thrombo-Angiitis Obliterans. D. L. Beers.—p. 900.
Dyschromatopsia in Aviation Examination. G. M. Constans.—p. 906.
Multiple Calculi—Stenson's Duct and Parotid Gland. F. M. Townsend. —p. 909.
Spontaneous Pneumothorax. B. S. Pupek.—p. 914.
Cutaneous Melanosarcomata with Lymphatic Involvement. G. Jelstrup. —p. 919.
Cerebrospinal Fever. R. L. Nattkemper.—p. 921.

Value of Electrocardiogram in Diagnosis.—Electrocardiograms were made by Ferguson and O'Connell to supplement the physical examination of 1,812 men with regularly beating hearts and without cardiac symptoms. Teleroentgenograms were made in sixty-nine cases, showing the various types of axis deviation. Blood pressure and pulse rate observations and the family and past medical histories in 822 midshipmen are given. Physical signs are considered with the electrocardiograms in 522 midshipmen. Electrocardiograms proved of no value in assessing the heart's condition in 1,809 men, who, after careful examination by a board of experienced examiners, were believed to have normal hearts. Certain anomalies were found which could not be demonstrated as pathologic. In 99 per cent of normal young men, the systolic blood pressure was found to be less than 130 mm. of mercury.

Sarcoma of Lung.—Blackwood reports a case of secondary sarcoma of the lung, the primary growth being situated in the mediastinum. Within two and a half months after his first subjective symptom, the patient was dead. The physical signs were elicited anteriorly instead of posteriorly, at which point some authorities state that they first appear. The involvement affected the upper lung field instead of the lower. There was an absence of fever, which, it is stated, most cases present. The roentgen-ray examination was of no value in the diagnosis. In fact, it was misleading. The most striking symptom was the paroxysmal dyspnea, at first inspiratory and later both inspiratory and expiratory. Evidently the pressure of the growth was mostly on the trachea, bronchi, or the vagus, as none of the other symptoms of the mediastinal syndrome were noted. The leaning forward of the patient during these dyspneic attacks was characteristic of mediastinal growths. There was cavitation, which is not common in sarcoma.

Thrombo-Angiitis Obliterans in Non-Jew.—Beers' patient was an Irish American, aged 42. Not only the lower extremities but also the upper extremities were affected. The case had previously been diagnosed as Raynaud's disease because the patient was not a Jew. No light is thrown on the etiology of the disease by this case.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 765-814 (Oct. 30) 1926

*Migraine: I. E. Bramwell.—p. 765.
*Id. II. Ophthalmic Standpoint. W. H. McMullen.—p. 769.
Future of Anesthesia. I. S. Johnston.—p. 775.
Research in Anesthesia: II. W. Bourne.—p. 778.
Id. III. H. M. Cohen.—p. 778.
Id.: IV. C. W. Moots.—p. 779.
Acute Suffocative Pulmonary Edema. W. W. MacNaught, N. Pines and H. Awrounin.—p. 780.
Meningitis and Encephalitis Due to Foreign Body in Cavernous Sinus. J. F. L. King.—p. 781.
Pylorospasm Due to Helminths. M. J. Rattray.—p. 781.
Hygiene as World Force. A. Balfour.—p. 782.

Etiology of Migraine.—In forty-three of fifty-four cases reviewed by Bramwell, true migraine first manifested itself before the age of 20. In only three cases was the onset delayed beyond the thirtieth year. Females suffer more often than males, a proportion of approximately 7 to 3. In thirty cases there was a familial history of migraine. Transmission through the mother is more common than through the father.

Diagnosis of Migraine.—McMullen suggests that only by well organized team work is it possible to discover the many abnormalities of structure or function which may be in some degree responsible for the symptoms of migraine; and further, that such team work is desirable in order to correct any tendency for specialists to stress unduly the importance of defects found in the organs in which they are most interested.

Indian Medical Gazette, Calcutta

61: 477-528 (Oct.) 1926

*Enterica: Value of Marris' Atropine Test in Diagnosis, and of T. A. B. Vaccine in Treatment. M. L. Treston.—p. 477.
Leptospirosis. F. A. Barker.—p. 479.
*Results of Treatment of 100 Cases of Cholera. K. L. B. Mallik.—p. 489.
Iritis Following Cataract Extraction. M. M. Cruickshank.—p. 490.
Practical Points in Blood Grouping and Selection of Donors for Blood Transfusion. R. B. Lloyd.—p. 493.
Case of Pleurisy with Effusion. A. T. Shahani.—p. 496.
Tumor of Scrotum and Groin Simulating an Irreducible Inguinal Hernia. M. K. Pillai.—p. 496.
Case of Apparent Absence of Uterus. J. B. Vaidya.—p. 496.
Case of Intestinal Obstruction. M. A. K. Iyer.—p. 497.
Twin Pregnancy in a Bicornuate Uterus. A. E. Duraisamy.—p. 497.
Paresis Following Emetine Injections. B. D. Pal.—p. 498.
Case of Severe Sepsis Accompanying Diabetes. J. V. Iyer.—p. 499.
Treatment of Bacillary Dysentery by Cresol. C. C. D. Gupta.—p. 499.
Case of Meddlesome Midwifery. A. Viswanathan.—p. 499.
Case of Hydrocephalic Monster. A. S. Dawson.—p. 500.
Case of Malarial Hemoptysis. K. L. B. Mallik.—p. 501.
Case of Facial Erysipelas Successfully Treated by Brilliant Green. C. C. Paul.—p. 502.
Case of Myositis Ossificans. C. Krishnamurty.—p. 502.

Marris Test for Typhoid.—Treston regards Marris' atropine test as being of distinct and definite value in the diagnosis of typhoid. The test is of little value in the diagnosis of the paratyphoid group of fevers.

Treatment of Cholera.—The treatment adopted in the 100 cases of cholera reported on by Mallik was the Rogers' saline treatment. The total death rate was 17 per cent, including 7 per cent from uremia. Sixty-seven of the patients were admitted in a collapsed state; all the deaths that occurred were among these patients. Success in treatment depends on the early admission of the patient to the hospital. The death rate among patients admitted within the first twelve hours of the onset of symptoms was 6 per cent, against 60 per cent among those admitted after twenty-four hours.

Journal of Anatomy, London

61: 1-152 (Oct.) 1926

*Occipital Lobe in Brain of Chinese; Sulcus Lunatus. J. I. Shellshear. —p. 1.
Facial Musculature of Australian Aboriginal. A. N. Burkitt and G. S. Lightoller.—p. 14.
Anatomy of Hexanchus Corinus. C. H. O'Donoghue.—p. 40.
Structure of Lymphoid Organ (Organ of Leydig) and Spleen of Hexanchus Corinus. L. L. Bolton.—p. 40.
Anomalies of Mylohyoid Muscle. P. Malpas.—p. 64.

Acephalus Holo-Acardiacus Showing Arrest of Development of Tissues in Embryonic Period. B. Boulgakow.—p. 68.
Case of Dicephalus, Dibrachius, Dipus Showing Certain Features of Embryologic Interest. S. Smith and B. Boulgakow.—p. 94.
Case of Cyclopia. S. Smith and B. Boulgakow.—p. 105.
Homology of Ala Temporalis and Alisphenoid Bone. H. L. Kesteven. —p. 112.
Disappearance of Precervical Sinus. J. E. Frazer.—p. 132.
Is Mingazzini Phenomenon, in Villus of Small Intestine, Evidence of Absorption? C. C. Macklin and M. T. Macklin.—p. 144.

Occipital Lobe of Brain in Chinese.—Shellshear says that the brain of the Chinese shows that the sulcus occipitalis lunatus is normally present in its primitive condition. In the majority of cases, its posterior lip forms an operculum, and the stria of Gennari extends to the posterior lip of the sulcus. The brain of the Chinese appears to be even more primitive, i. e., more directly comparable with the anthropoid brain, in the occipital region than is the brain of the Egyptian. This is corroborated by the fact that the sulcus occipitalis transversus is to be found in many brains within the lunate fossa.

Journal of Pathology and Bacteriology, Edinburgh

29: 325-543 (Oct.) 1926

Foreign Particles, Reticulo-Endothelial System and Anemia. A. R. Elvidge.—p. 325.
Experimental Uric Acid Nephritis. J. S. Dunn and C. J. Polson.—p. 337.
*Flocculation Reaction for Serum Diagnosis of Malignant Disease. H. J. B. Fry.—p. 353.
Comparison of Pathogenicity for Mice of Normal and Rough Forms of Salmonella Enteritidis (Gärtner). A. N. Goyle.—p. 365.
*Atheroma of Aorta. J. B. Duguid.—p. 371.
*Influence of Vasomotor State of Peripheral Blood Vessels on Leukocytic Content of Blood. A. F. B. Shaw.—p. 389.
*Osteoma, with Pulmonary Metastasis. E. F. Finch and H. H. Gleave.—p. 399.
*Disease of Rabbits Characterized by Large Mononuclear Leukocytosis, Caused by Bacterium Monocytogenes (n. sp.). E. G. D. Murray, R. A. Webb and M. B. R. Swann.—p. 407.
*Agglutinin Content of Tissue Fluid. J. S. C. Douglas and F. W. Simson.—p. 441.
*Influence of Removal of Thyroid, Parathyroid and Sex Glands and Thyroid Feeding on Regulation of Body Temperature of Rabbits. V. Korenchevsky.—p. 461.
Influence of Optimal Proportions of Antigen and Antibody in Serum Precipitation Reaction. H. R. Dean and R. A. Webb.—p. 473.
Case of Rat-Bite Fever: Spirillum Minus. T. J. Mackie and E. N. McDermott.—p. 493.
Identification of Sonné Dysentery Bacillus in England. H. A. Channon. —p. 496.

Flocculation Reaction for Diagnosis of Malignant Disease.—According to Fry, a saline emulsion of the saline-insoluble acetone-insoluble alcohol-soluble substances of tumor tissue gives a flocculation reaction with the serum of cases of malignant disease. In 1,000 malignant and control cases, 748 correct results were obtained (74.8 per cent). In the 494 cases of malignant disease there were 357 correct results (72.3 per cent), and the 506 controls gave 391 correct results (77.3 per cent). Healthy persons, and pregnant women gave negative reactions, except in two cases each. Nonmalignant tumors gave a negative reaction in 72 per cent. Syphilis, tuberculosis and certain conditions of cellular disintegration cause flocculation in a percentage of cases. If tuberculosis, syphilis and suppurative conditions are excluded, a positive reaction has considerable weight in the diagnosis of malignant disease. A negative reaction is of less value, but generally indicates that malignant disease, if present, is neither advanced nor widespread. A strongly positive reaction seems to indicate an advanced malignant condition or widespread metastases. The reaction is not completely specific for malignant disease, but is an indication of tissue or cellular disintegration.

Atheroma of Aorta.—An explanation of this condition, which is said to be applicable to all the pathologic states in which fatty change makes its appearance in the aortic intima, is given by Duguid. He says: Atheroma is a condition brought about by impairment of the elasticity and pliability of the tissues of the intima. The lesions, which are marked by the presence of fatty deposit, are the result of the diastolic recoil of the vessel causing the intima to form folds, and the more prominent parts of these folds tend to separate themselves from the media. Proliferation of fibrous connective tissue occurs in association with fatty deposits in the tissues of the intima and follows as a reinforcing or reparative measure when this separation takes place. Hyperplasia of fibrous connective tissue tends to diminish the pliability of the intima. If it is irregular in its distribution, it is likely to lead to injury, so that excessive proliferation may bring about further changes of the very nature it is designed to counteract. Atheroma is the mark of a vicious and progressive cycle of such changes. The variations in the appearances seen in atheroma are to be accounted for by the variation in the degrees of elasticity which may be present in different aortas. Factors which tend to increase the range of pulse movements increase the liability to atheromatous changes, and of these factors the most important are hypertension with high blood pressure (hyperpiesis), and the strain caused by the focal fixation of the aorta by its branches. The cicatricial fibrosis of syphilitic aortitis causes impairment of the intimal pliability and this leads to atheromatous change at the affected parts. Fibrosis cannot be demonstrated in the earliest stages of atheroma, but edema and hyaline change can be seen which may cause considerable loss of pliability in the intima. Early atheromatous changes and acute general toxemic conditions are united in their association with hyaline and edematous change of the aortic intima.

Leukocyte Content of Blood.—The distribution of leukocytes in peripheral blood, Shaw asserts, is influenced by the vasomotor state of the peripheral veins (in rabbits) and "capillaries" (in man). The leukocyte content of peripheral arterial blood is not influenced by vasomotor changes. In addition to the local accumulation of cells in the peripheral vessels under the influence of vasoconstriction, there are "physiologic oscillations" which are independent of vasomotor activity and are systemic in origin. Under prescribed conditions, the local application of cold (man) causes a rise in the leukocytes, and heat locally applied (rabbit) causes a fall in the count.

Osteoclastoma.—A case of osteoclastoma (myeloid sarcoma) of the lower end of the femur, of at least nine years' duration, is reported by Finch and Gleave, in which metastases had the histologic characters of the primary tumor, with numerous typical giant cells, and in addition an admixture of fibrosarcomatous tissue. This case, and other cases from the literature, the authors aver, confirm the neoplastic character of these tumors, and leave no doubt that, though usually slow growing and only locally malignant, they are essentially sarcomatous.

Bacterium Monocytogenes.—In investigating a spontaneous epidemic disease of rabbits, a micro-organism was isolated by Murray, Webb and Swann in pure cultures which reproduced the characteristic lesions of the natural disease. The bacteriologic characters of this bacillus are described and the impossibility of identifying it with previously recorded organisms justifies its being considered a new species. The name *Bacterium monocytogenes* is proposed for this organism.

Disease Due to Bacterium Monocytogenes.—Experiments made by Douglas and Simson indicate that agglutinin is present in the tissue fluid and can enter the circulation with that fluid, and that it does not do so in a concentration in any way approaching that in the plasma of the blood in response to either of the methods employed — the injection of hypertonic solutions or the use of simple hemorrhage. The walls (endothelium) of the blood vessels impose a partial barrier to the passage of this antibody into the blood stream from without.

Rôle of Thyroid in Regulation of Body Temperature.—Korenchevsky states that the thyroid plays an important part in the regulation of the body temperature, and therefore its condition has always to be taken into account in considering the resistance of different persons to cold or heat, and also in the diseases accompanied by fever.

Lancet, London

2: 839-888 (Oct. 23) 1926

Debt of Medicine to Experimental Method of Harvey. J. R. Bradford. —p. 839.
Workman's Compensation and Surgeon. V. W. Low.—p. 844.
*Blood Transfusion in Children's Practice. C. H. Carlton.—p. 850.

*Microscopic Appearances of Spinal Cord in Tetanus. S. H. Nelson.—p. 852.
Malignant Tumors Following One Application of Irritant. H. P. Pickerill.—p. 854.
Case of Surgical Emphysema in Scarlet Fever. F. R. Curtis and I. C. Thomson.—p. 854.

Blood Transfusion in Pediatrics.—On the basis of his experience with 600 transfusions given to children, Carlton states that the transfusion of whole blood by means of glass syringes is an easy and successful operation which may be performed even on the newly born. As a combatant of shock and a corrector of hemorrhage, it is a valuable routine adjunct to many operations of childhood. It guards a newly born child against the dangers of prematurity or hemorrhage. It may save the life of a child suffering from burns. It is an aid to the treatment of the metabolic toxemias of infancy.

Changes in Spinal Cord in Tetanus.—The chief changes found by Nelson in the posterior root ganglions removed in a case of tetanus were in the nerve cells, both sensory and motor, and they were characterized by disintegration of the Nissl bodies, pyknosis, shrinkage of the cell protoplasm and eccentricity of nuclei. The presence of congestion and hemorrhages was notable in the cord, but there was no round cell infiltration or any change indicative of an inflammatory process.

2: 889-938 (Oct. 30) 1926

*Prophylactic and Therapeutic Immunization and Its Interpretation. J. McIntosh.—p. 889.
*Private Medical Practice and Preventive Medicine. A. Newsholme.—p. 893.
*Natural Formation of Acquired Adhesions. G. L. Cheatle.—p. 898.
*Afebrile Tachycardia in Early Phthisis. A. Delmege.—p. 899.
Transcondylar Fractures of Humerus in Children. F. D. Saner.—p. 901.
Vesical Calculus with Paraffin Nucleus. A. E. Roche.—p. 902.
Case of General Paralysis with Benign Tertian Malaria. G. T. Baker.—p. 903.

Nature of Immunization.—McIntosh believes that in both prophylactic and therapeutic immunization in man, the general trend has been toward simplification. Gradually the living attenuated virus antigen has been replaced by a dead virus or bacterial product, and the dosage accurately controlled. In prophylactic immunization, the protection afforded apparently depends mainly on the specific antibodies elaborated, and on the sensitization (allergy) of the tissues. In therapeutic immunization two factors are at work, a specific and a nonspecific. The specific is a typical antibody response, while the nonspecific appears to be mainly dependent on a general stimulation of the tissues and leukocytes—in fact, to a process comparable to fever. In recent years there is a greater tendency to make use of the valuable nonspecific response.

Private Practice and Preventive Medicine.—Newsholme states that the progress of the application of preventive medicine depends predominantly on the attitude of the medical profession. It has even been said that physicians constitute a chief obstacle to this progress; but this can only be true in those instances in each community in which there is, for instance, failure to use every available means for prompt diagnosis and for adequate treatment of, say, tuberculosis and syphilis; when the duty of prenatal care for every expectant mother whose name is on a physician's list has not been realized; and when, for instance again, the physician fails to fulfil his duty as doctor or teacher, in respect of the prevention of rickets, the avoidance of unhygienic habits, and especially in regard to the consumption of alcoholic drinks. In view of the habit forming risks involved, the physician who flippantly and without serious reason prescribes alcoholic drinks to an ailing patient is definitely open to the accusation of antisocial action.

Formation of Acquired Adhesions.—The natural formation of acquired adhesions, Cheatle says, may be due to two methods: (1) The direct, in which apposed denuded surfaces in contact with each other heal by first or second intention. (2) The indirect method, in which long strands of fibrin become organized by the upgrowth of connective tissue covered by endothelium. They form adventitious connections between widely separated parts of serous cavitis.

Afebrile Tachycardia in Early Phthisis.—Any toxic condition, such as a mild tonsillitis, or an injection of tuberculin or of a vaccine, may, of course, cause a rise in pulse rate without a corresponding rise in temperature, and such a tachycardia, Delmege says, in which the cause is clear, forms a parallel to those cases of varying duration which occur as part of an undoubted tuberculous toxemia. A case of the latter type is reported.

Medical Journal of Australia, Sydney

2: 435-468 (Oct. 2) 1926

Facts and Fancies, Olfactory and Otherwise. E. Culpin.—p. 435.
*Syphilis and Insanity. S. E. Jones.—p. 441.
Differential Diagnosis of Cerebral Syphilis. S. J. Mixogue.—p. 44.
Cisterna Magna Puncture. J. F. Mackeddie.—p. 447.
*Treatment of Chilblains. L. J. C. Mitchell.—p. 449.
Mendel and Genius. G. H. Taylor.—p. 450.
*Gonococcal Septicemia. A. H. Tebbutt.—p. 451.
Arterial Aneurysms. A. Aspinall.—p. 452.

Syphilis and Insanity.—Of 4,626 men and women reported on by Jones, 794, or 17.1 per cent, had a positive cerebrospinal fluid Wassermann reaction or undoubted clinical evidence of syphilis. General paralysis constituted 8 per cent of total admissions. Dementia and psychotic symptoms in the true sense of the term were present in 60 per cent of cases. Euphoria occurred in 50 per cent of cases, expansive delusions occurring in 30 per cent. Psychomotor excitement was seen in 30 per cent of the patients. Alternating states of mania and depression were recorded in 5 per cent of the patients, and the duration of their illnesses appears to be longer than that of patients suffering from the other forms. Emotional depression was presented as an outstanding feature by 12 per cent; it was usually associated with delusions, either somatic or persecutory; these delusions not infrequently were expansive in nature. A small group of 2.5 per cent was characterized by the presence of persecutory delusions without any affective or psychomotor disturbances. Hallucinations were prominent in 10 per cent of patients and occurred in all types, but more frequently in those of the depressive and expansive manic groups. Auditory hallucinations were twice as common as visual. Epileptiform seizures occurred in 16 per cent of the patients, most frequently in the expansive manic types (33 per cent), and least often in the manic depressive form (10 per cent). There were seven instances in which husband and wife were both admitted to the hospital suffering from cerebral syphilis. In six instances, the men had general paralysis, and in the seventh, the condition was one of syphilitic epilepsy. All the women suffered from general paralysis. There were records of twelve patients suffering from juvenile general paralysis. There were ninety-one cases of cerebral syphilis. The majority suffered from some form of vascular disease. There were nine cases of tabes, all the patients being males in whom dementia was the chief psychic symptom. Twelve males and one female suffered from confusional psychoses; in all there was a history of recent syphilitic infection, and in many there were secondary syphilitic lesions. One of this group of patients manifested the rare condition, acute syphilitic meningitis.

Treatment of Chilblains.—Mitchell resorts to elastic pressure in treating chilblains. A specially made rubber band, three-fourths to 1 inch wide, is stretched over the affected part at its greatest thickness. The relief from the itching and throbbing is said to be instantaneous, and after a few days the part is normal in appearance save for a little desquamation. The pressure must be firm, but not painful.

Gonococcal Septicemia.—Tebbutt reports two cases in which gonococci were cultivated from the blood during life. Both patients succumbed. The first patient was admitted as suffering from purpura hemorrhagica. The second case was an example of a local gonococcal infection giving rise to a chronic blood infection which led to a fatal issue without any evidence of endocarditis or metastases.

South African Medical Record, Cape Town

24: 437-464 (Oct. 23) 1926

Coming Generation. A. W. Sanders.—p. 438.
Prognosis in Heart Disease. H. Smith.—p. 442.
Thrombosis of Coronary Arteries. A. W. Falconer.—p. 450.

Comptes Rendus de la Société de Biologie, Paris

95: 1013-1088 (Oct. 29) 1926. Partial Index

*Metabolism and Law of Surfaces. A. Ozorio de Almeida et al.—p. 1016.
*Production of Antibodies in Cerebrospinal Fluid. S. Mutermilch.—p. 1018.
*Action of Secretin on Pancreatic Secretions. L. Garrelon et al.—p. 1022.
*Detection of Biliary Salts in Albuminous Urines. M. Brulé et al.—p. 1036.
*Elimination of Iron by Mammary Gland. H. Dorlencourt and Calugareanu-Nandris.—p. 1038.
*Rôle of Hydrogen Ions in Shock. G. Milkovitch.—p. 1040.
*Action of Phenobarbital and Barbital on Nervous System. O. Arnell.—p. 1046.
*Influence of Cocaine on Vagal Irritability. E. L. Backman and H. Rydin.—p. 1048.
*Experimental Enhancing of Toxicity of Cocaine. E. L. Backman and H. Rydin.—p. 1050.
*Action of Cod Liver Oil on Blood. H. Burström.—p. 1053.
*Influence of Opium on Hypoglycemic Action of Insulin. C. G. Danielson.—p. 1058.
*Benzene in Treatment of Leukemias. G. Hultgren.—p. 1063.
*Arterial Pressure and Secretion of Epinephrine. E. A. Molinelli.—p. 1081.
*Epinephrinemia, Arterial Pressure and Glycemia. E. A. Molinelli.—p. 1084.
*Suprarenals and Resistance to Cold. L. de Marval.—p. 1087.

Metabolism and Rubner-Richet's Law of Surfaces.—Ozorio de Almeida, Branca de A. Fialho and de Couto e Silva studied the basal metabolic rate of bats. Estimated in relation to body weight, it was about the same as that of other animals; estimated in relation to surface area, it was extremely low. On extending the wings, the animal increases its surface area considerably without altering its weight. The metabolic rate does not increase proportionally to the surface, but varies according to the (weight) W ⅔. It remained the same when the surface of the animal was decreased experimentally by cutting off the wings. One may object that the surface of radiation of heat was not modified since the wings were not spread during the first experiment. The objection is not valid because the animals were placed in a thermally neutral medium where surface changes cannot alter the radiation of heat. The metabolic rate is the same in the bat when the wings are spread and when they are folded, just as in man it is unaffected by the position of the arms and legs when the temperature of the room is neutral. Evidently metabolism in bats does not depend on the surface area of the body. The well known relation between the basal metabolic rate and the surface of the body is due to a mere coincidence: it happens that the metabolic rate and the surface area stand in a similar mathematical relation to the weight.

Passage of Hemolysins into Cerebrospinal Fluid.—Recent researches have shown that intravenous injections of methenamine accelerate considerably the transmission of hemolysins into the cerebrospinal fluid. They appear in it from fifteen to twenty minutes after administration of the methenamine. Their titer gradually increases up to the second hour; five or six hours after the injection they disappear. This shows that methenamine is capable of increasing the permeability of the meningeal vessels for hemolysins after vaccination. In collaboration with Delaville, it was proved that arsenic passes through the meninges and appears in the cerebrospinal fluid of animals injected simultaneously with neoarsphenamine and methenamine. The method may be of service in treatment of certain forms of neurosyphilis.

Action of Secretin on Pancreatic Secretions.—Garrelon, Santenoise and Le Grand conclude from their experiments on dogs that the influence of secretin on the pancreas is not limited to the secretion of the pancreatic juice, but that it also enhances the secretion of a hormone which stimulates the vagus centers.

Detection of Biliary Salts in Albuminous Urines.—Brulé, Nicaise and Gilbert-Dreyfus' observation was made on a case of hydatid cyst of the liver with jaundice. At first the Meillère reaction (modified Pettenkofer test) and the Hay reaction were positive, demonstrating the presence of biliary salts and a low surface tension in the urine. When the patient's condition grew worse, albuminuria appeared. The chemical reaction remained positive while the Hay test became negative. An analogous result was obtained in albuminous urines to which biliary salts were added. It is due to the fact that the decrease of urinary tension from the biliary salts is compensated by increase of the same tension from albumin. For this reason, biliary salts may be overlooked in albuminous urines, if the albumin is not removed before the Hay test is applied.

Elimination of Medicinal Iron by Mammary Gland.—Iron compounds were given to ten healthy women suckling their infants. In eight the amount of iron in the breast milk increased; it was sometimes from twice to four times as much as before. The increase started from one to six days after beginning the treatment. Dorlencourt and Calugareanu-Nandris think that an anemic infant may benefit greatly from the administration of iron to the mother.

Hydrogen Ion Concentration a Factor of Anaphylactic Shock.—One series of guinea-pigs was given intracardiac injections of a mixture composed of syphilitic antigen, serum from syphilitic patients and solution of acid potassium phosphate. This induced immediate shock followed by death of the animal. Another series was injected with the same mixture except that the syphilitic serum was replaced by normal serum. Shock did not occur. Shock did not supervene when the first mixture was given without the acid. The p_H of the mixture containing the acid potassium phosphate is from 6 to 7. Evidently increase in the number of positive ions is necessary for the antigen-antibody flocculation. The first injection of the antigen induces formation of corresponding antibodies. If the second injection of the same antigen is given when the concentration of the positive ions in the blood is optimal, shock is inevitable. Otherwise it will not occur. The experiments suggest a new method for the diagnosis of syphilis.

Action of Phenobarbital and Barbital on the Sympathetic and Parasympathetic Nerves.—Arnell found that phenobarbital sodium is without influence on the sympathetic and parasympathetic nerves, while barbital sodium enhances the irritability of the sympathetic, and inhibits that of the parasympathetic.

A Condition Enhancing the Toxicity of Cocaine.—Backman and Rydin induced paresis of the sympathetic motor centers in cats by administration of ergotamine tartrate. The resultant hyperexcitability of the vagus was found greatly to enhance the toxic property of cocaine hydrochloride. This may explain why a nonlethal dose of cocaine sometimes causes death.

Influence of Cod Liver Oil on Composition of Blood.—Burström studied the changes in rabbit's blood following injections of cod liver oil. At first there was a decrease of the number of blood platelets and leukocytes. This was soon succeeded by an increase of the number of platelets and polymorphonuclear leukocytes, which persisted for a certain time. The number of erythrocytes did not change. The phenomena confirm the stimulative action of cod liver oil on red bone marrow. The results were obtained with the therapeutic dose.

Influence of Opium on Hypoglycemic Action of Insulin.—Danielson's experiments on rabbits demonstrated that opium given together with insulin may enhance the sugar-reducing action of the latter, although it may increase the blood sugar level when given alone.

Action of Benzene on Figured Elements of Blood.—Hultgren asserts that small doses of benzene irritate the bone marrow and thus enhance the production of blood platelets and polymorphonuclear leukocytes. Given in large doses, it is a poison with a paralyzing action on the bone marrow. In treatment of leukemias, small doses of benzene should be used for a short time, preferably in subcutaneous injections. By this method the reduction of leukocytes will proceed gradually.

Influence of Variations of Arterial Pressure on Secretion of Epinephrine.—From experiments on dogs, Molinelli concludes that the secretion of epinephrine depends on variations in the arterial pressure (venesection or transfusion). Restoration of the initial arterial pressure is not due to epinephrine alone but to its action combined with that of the vasomotor nervous system. The stimulating action of epinephrine on arterial pressure, cardiac contractions and glycemia is less important than that of the vasomotor nervous system.

Rôle of Suprarenals in Resistance to Cold.—Marval's research was conducted on rats. Resistance to cold was much lower in suprarenalectomized animals than in the controls. This may be due to suppression of epinephrine, which is capable of generating heat within the animal body, or to disturbance of the metabolism. The gradually decreasing susceptibility to cold is hypothetically ascribed to hypertrophy of accessory suprarenals, of extrasuprarenal chromaffin tissue or other supplementary organs.

Presse Médicale, Paris

34: 1425-1440 (Nov. 13) 1926

*Rôle of Spleen in Regulation of Erythrocytes in the Blood. L. Binet. —p. 1425.
Mechanism and Treatment of Anaphylaxis. M. Vernet.—p. 1427.
Etiology of Venereal Granuloma. R. Clément.—p. 1429.
Kinematography Plus Optic Recording of Sounds. R. Lutembacher.—p. 1435.

Spleen as Organ Regulating the Content of Erythrocytes in the Blood.—The amount of red corpuscles in the blood during rest or normal respiration is called by Binet the basal globulia. In muscular exercise or acute asphyxia, the number of erythrocytes increases considerably. The metabolic products of contracted muscles irritate the vasoconstrictor center and the center of secretion of epinephrine. The combined action induces a prolonged contraction of the spleen and the expulsion of erythrocytes into the blood stream. Analogous phenomena occur in asphyxia. In both instances the increase of the red corpuscles in the blood represents a salutary reaction of the organism.

34: 1441-1456 (Nov. 17) 1926

Therapeutic Abortion in Tuberculous Women. A. Pissavy and Lejard. — p. 1441.
*Rôle of Endocrine Glands in Varices. L. Gaugier.—p. 1442.

34: 1457-1472 (Nov. 20) 1926

Pathology of Gonococcus Disease. H. Jausion.—p. 1457.
Lacunar Perigastritis After Gastro-Enterostomy. R. A. Gutmann and R. Jahiel.—p. 1459.
Biologic Conceptions of Sex Determination. A. Ravina.—p. 1462.

Rôle of Endocrine Glands in Varices.—Gaugier asserts that essential varices, not due to an obstruction to the circulation, are connected with deficiency of a hormone stimulating the venous walls. The noted varix heredity is rather an endocrine gland heredity. Disturbances in the pituitary or in the genital glands are a frequent factor, especially in women. Deficient secretion of the ovarian glands and consequent changes in the sympathetic may induce varices at the time of puberty, which become more pronounced during the menses. In other cases the varices do not appear before the menopause. The cause of the varices of pregnancy is the same, and not compression of the iliac veins by the uterus. Varices sometimes occur two or three months after bilateral ovariectomy. The influence of the pituitary seemed especially evident in fifteen patients with an acromegaloid syndrome. The rôle of other endocrine glands in varices has not been established.

Pediatria, Naples

34: 977-1040 (Sept. 15) 1926

Cutaneous Leishmaniasis in Naples. A. Versari.—p. 977.
Darier and Roussy Sarcoids. A. F. Canelli.—p. 1001.
Endocrines in Duchenne's Dystrophy. F. de Nicolò.—p. 1014.
Pyuria in Nurslings. A. Bocchini.—p. 1024.

34: 1041-1096 (Oct. 1) 1926

Congenital Myatonia. L. Auricchio.—p. 1041.
Hematology in Rickets. A. Merlini.—p. 1056.
Congenital Syphilis in Messina. D. Tambato.—p. 1070.
Meningococcemia Plus Streptococcemia in an Infant. A. Cozzari. —p. 1073.
Malignant Endocarditis. L. Conti.—p. 1078.
Case Reports. M. Sindoni and F. Guccione.—p. 1082.

Policlinico, Rome

33: 1381-1414 (Oct. 4) 1926

*Pathogenesis of Acromegaly. S. Trentini.—p. 1381.
Cancer of Mastoid After Otitis, Plus Syphilis. G. Zanni.—p. 1388.
Giant Cell Tumor of Humerus. C. Colucci.—p. 1392.

Pathogenesis of Acromegaly.—Trentini discusses the possibility of primary changes in the sex glands in acromegaly. According to this hypothesis, the anatomic changes and hyperfunction of the pituitary gland, which determine the other clinical symptoms, might be secondary.

Riforma Medica, Naples

42: 937-960 (Oct. 4) 1926

Syphilis or Tumor of the Liver? G. Arena.—p. 937.
*Reaction of Exudates and Transudates. G. Melli.—p. 939.
*Cholecystitis Syndrome from Pneumothorax. F. Russi.—p. 942.
Enzyme Reactions. U. Rebaudi.—p. 945.
Venereal Prophylaxis. M. Gioia.—p. 955.

Reaction of Exudates and Transudates.—Melli found a p_H of from 7.36 to 7.60 in exudates; in transudates it was from 7.70 to 8.40. He attributes the difference to the changes in the Donnan equilibrium resulting from the larger amount of proteins in the exudates.

Cholecystitis Syndrome fom Pneumothorax.—Russi points out that the lowering of the right side of the diaphragm in artificial pneumothorax may cause gastro-intestinal disturbances. These are due to hepatoptosis and displacement of the gallbladder with subsequent biliary stasis.

Archivos Brasileiros de Medicina, Rio de Janeiro

16: 501-590 (Sept.) 1926

Penetrating Wounds of the Abdomen. F. de Niemeyer.—p. 501.
*Mishaps in Arsenic Treatment. R. de Souza Coelho.—p. 519.
Calcium, Parathyroid Extract and Epilepsy. N. de Barros.—p. 525.

Arsphenamine Mishaps.—At the Gaffrée-Guinle Foundation venereal dispensary, more than 30,000 patients have been treated in less than two years. About 10,000 received more than 80,000 neoarsphenamine injections. De Souza Coelho reviews 177 complications observed in the course of 3,460 injections in 336 patients. In only thirty-one cases (0.89 per cent) was the complication of any real importance: intolerance, nine; nitritoid crisis, seven; neurorecurrences, five; erythrodermia, four; liver insufficiency, six.

Archivos Españoles de Pediatría, Madrid

10: 577-640 (Oct.) 1926

*Laryngeal Stenosis Following Measles. A. Martin Calderín.—p. 577.
Vertebral and Spinal Dysplasia. J. Bravo y Frias.—p. 599.

Laryngeal Stricture Following Measles.—Martín Calderín studied 157 cases in children from 4 months to 7 years old. In 95 per cent the laryngeal stricture following or complicating measles was of a diphtheritic nature. When laryngeal stenosis develops after measles, a large dose of diphtheria antitoxin should be injected without delay. Bacterial and laryngoscopic examinations have only a relative value in such cases. All children with measles should be immediately protected against diphtheria. Neither intubation nor tracheotomy proves very helpful, and they should be delayed as long as possible. Intubation seems preferable in pseudomembranous cases and tracheotomy in the ulcerated, eroded cases with much swelling and tendency to abscess formation. In only five cases (3.18 per cent) did the stricture precede the rash; in 23.5 per cent the two coincided, while in 73 per cent the stenosis appeared from ten to twenty days after the eruption.

Archivos Latino-Amer. de Pediatría, Montevideo

20: 525-588 (Sept.) 1926

Child Welfare and Social Service in Maternity Hospitals. A. Peralta Ramos and J. P. Garrahan.—p. 525.
*Congenital Malaria. C. Arias Aranda.—p. 533.
Hospital Care of Infants. P. Rueda.—p. 537.
Syphilis Prevention in Maternity Hospitals. N. Palacios Costa et al. —p. 546.
*Whooping from Laryngeal Syphilis. A. Casaubón.—p. 561.
*Expiratory Laryngeal Stridor from Tuberculosis of Glands. V. Raggio Acosta y Lara.—p. 564.
*Duchenne's Pseudohypertrophic Muscular Paralysis with Endocrine Deficiency Manifestations. L. Morquio and J. M. Estapé.—p. 566.

Congenital Malaria.—The mother, states Arias Aranda, was an old malarial patient who had had attacks during the ninth month of pregnancy. Labor was normal. A blood examination made on the infant on the second day of life showed schizonts and gametes of *Plasmodium vivax*. The baby died thirty-six hours after the examination, partly through the mother's neglect. In previously reported cases of congenital

malaria, there has usually been doubt as to whether the infection was caused by mechanical factors or resulted from new inoculation by mosquitoes.

Laryngeal Syphilis as a Cause of Whooping.—A child, aged 3 years, according to Casaubón, had suffered from whooping for six months. The stridor was purely inspiratory and the diagnosis remained in doubt. Laryngoscopic examination disclosed a number of patches, and the Wassermann test proved strongly positive. The whooping subsided as soon as the patches had been banished by antisyphilitic medication.

Tuberculous Glands as a Cause of Whooping.—In a 4 month old infant whooping appeared in the second month of life. After other possible causes had been excluded, enlargement of the tracheobronchial lymph glands was discovered by roentgenoscopy and a strongly positive skin test confirmed the diagnosis of tuberculosis.

Duchenne's Myopathy with Endocrine Disturbance.—The case reported by Morquio and Estapé in a child 10 years old exhibited Duchenne's pseudohypertrophic muscular paralysis combined with a pluriglandular endocrine deficiency. This bears out Claude's endocrine theory as to the origin of Duchenne's disease.

Boletín de la Soc. de Obstet. y Ginecol., Buenos Aires

5: 369-398 (Oct. 16) 1926

Precancerous Conditions in the Uterus. C. A. Castaño.—p. 369.
Repeated Pregnancies After Cesarean Section. E. Zárate.—p. 384.
*Bismuth in Syphilis in Pregnant Women. M. L. Pérez.—p. 387.

Comparative Inefficiency of Bismuth in Syphilis in Pregnant Women.—Pérez describes in full six cases to prove the comparative inefficiency of bismuth in pregnant syphilitic women. Bismuth was given to twenty-six out of 119 patients; the treatment failed in 23 per cent. The percentage of failures was higher with bismuth than with arsphenamine, the same as with mercury alone and far higher than with a combination of arsphenamine, mercury and iodides. The results were judged from the effect on the course of the pregnancy and from the condition of the fetus.

5: 399-429 (Oct. 24) 1926

*Ascariasis and Vomiting of Pregnancy. C. Velasco Suárez.—p. 403.
Torsion of Puerperal Uterus from Fibroma. A. R. Enriquez and E. A. Boero.—p. 417.

Ascaris Infestation as an Aggravating Element in Vomiting of Pregnancy.—In both cases described by Velasco Suárez, the ascarides were found in the vomitus of pregnant women. In one case, duodenal drainage was successful in removing thirteen worms. In both cases, pregnancy had eventually to be interrupted, with a fatal outcome for one patient. In this case four ascarides were found in the duodenum at necropsy. The worms may aggravate or perhaps even precipitate the emesis in pregnant women.

Brazil-Medico, Rio de Janeiro

2: 245-258 (Oct. 30) 1926

*Leprosy and Cancer. F. Terra.—p. 245.
Paroxysmal Tachycardia in Cardio-Aortic Syphilis. O. Clark.—p. 246.

Cancer in the Course of Leprosy.—A leper, aged 36 years, with the nervous type of the disease, developed a typical prickle cell epithelioma on the lower lip. This is the first case of coexistence of leprosy and cancer seen by Terra since he has been in charge of the leper hospital. He has examined more than 700 patients. An inquiry among Brazilian dermatologists and a review of the literature did not bring to light any similar case.

Prensa Médica Argentina, Buenos Aires

13: 417-452 (Oct. 10) 1926

Meningitis from Mumps. M. Del Sel.—p. 417.
*Cervicothoracic Sympathectomy and Cardiac Insufficiency. A. Navarro.—p. 424.
Multiplicity of Protozoa in the Intestine of a Dog. D. Greenway and D. F. Greenway.—p. 426.

Sympathectomy and Heart Failure.—Navarro reports the case of a woman, aged 55, on whom a cervical sympathectomy had been performed elsewhere because of various and increasing eye disturbances. A latent goitrous condition was also present. Following the operation, all the previous symptoms became aggravated. In addition new manifestations appeared, shortness of breath, throbbing, edema, sleeplessness, diarrhea, nervousness and malaise. The general condition improved under treatment, but the condition of the heart has become alarming. A heart muscle already weak may be unable to stand the loss of the sympathetic pathways.

Revista de la Soc. Arg. de Biología, Buenos Aires

2: 243-357 (Aug.) 1926

*Cockroaches as Disseminators of Disease. E. Tejera.—p. 243.
Cerebrospinal Cysticercosis. M. R. Castex et al.—p. 257.
Intestinal Infections by Parasites. M. R. Castex and D. Greenway.—p. 263.
Changes in the Membrane of the Echinococcus. J. Llambias.—p. 268.
Epinephrine Hypoglycemia. H. Roselló and E. Rodriguez.—p. 274. Summarized when published elsewhere.
Atropine, Epinephrine and Pilocarpine as Vegetative Nervous System Reagents. M. Balado.—p. 289.
*Blood Cells, Hemoglobin, Bilirubin and Urobilin in Anemia from Cobra Poison. M. Royer.—p. 301.
*Symptoms of Suprarenal Insufficiency in the Dog. O. Pico Estrada.—p. 348.

Cockroaches as Disseminators of Disease.—In a series of researches, Tejera demonstrated a number of animal and vegetable organisms in the digestive tract of roaches. Some of the germs may prove pathogenic. In roaches caught around toilet rooms, amebas and lamblias were found. Roaches were also discovered infected with diphtheria, dysentery and tubercle bacilli. These retained their virulence for several days.

Experimental Poisoning with Cobra Venom.—A series of experiments by Royer shows a wide variability in the susceptibility of dogs to cobra venom. A 0.004 Gm. dose given to each of three dogs, all weighing 10 Kg., killed one in forty-five minutes, in the second caused a drop in the number of blood cells to 2,000,000 per cubic centimeter, and did not affect the third animal in any way. Generally, however, cobra poison caused a marked anemia both in normal dogs and those with biliary fistula. McMaster's technic was used in the biliary fistula cases. Total removal of bile seemed to decrease resistance to the poison. An almost simultaneous injection of lecithin apparently increased its potency. In general, the effect of cobra poison on dogs included leukocytosis with acidophil and neutrophil polymorphonuclear cells, decrease of platelets, and hyperchromic anemia with rapid repair. The liberated hemoglobin was temporarily stored in the red blood cells. The discharge of bile pigments increased. Hemoglobin appeared in the urine. Bilurubin was not found either in the blood or in the urine.

Phenomena Following Suprarenalectomy in Dogs.—Pico Estrada observed the symptoms following the removal of the suprarenals in dogs. An interval of from seven days to several months elapsed between the excision of the two glands. Local anesthesia with procaine hydrochloride and epinephrine proved excellent as to subsequent by-effects. In spite of repeated bleeding and various injections and manipulations, the animals lived from thirty to 136 hours. The earliest symptom of suprarenal insufficiency, occurring a few hours after operation, was hypoglycemia; then came loss of appetite and increase in blood volume and in temperature. The blood pressure remained about normal almost to the end. Digestive disturbances, vomiting, diarrhea and so forth belonged to the later stage. Behavior changes were observed, the animals gradually becoming docile and listless. Circulatory and nervous changes predominate when the survival is brief, and digestive and metabolic symptoms when it is otherwise. The necropsies showed congestion of the stomach, liver, spleen and especially the pancreas. The pancreatic congestion suggested a possible discharge of insulin.

Semana Médica, Buenos Aires

2: 977-1044 (Oct. 14) 1926

*Ulcer of Pylorus and of Lesser Curvature. J. R. Goyena.—p. 977.
Cartilaginous Tissue of the Tonsils. S. E. Parodi and H. Zubizarreta.—p. 982.
Two Emergency Cases of Symphiosotomy in a Nonsurgical Environment. D. E. V. Esquivel.—p. 985. Summarized when published elsewhere.
Effects of Alcoholism in Children. J. M. Obarrio.—p. 988.
*Botulism. P. J. Pando.—p. 1013.
Endovenous Chemotherapy of Gonorrhea. F. E. Grimaldi and R. de Surra Canard.—p. 1017.

Laryngeal Motility in Pulmonary Tuberculosis. E. Riccitelli and Y. Franchini.—p. 1023.
Autohemotherapy. L. Goldemburg.—p. 1025.

Ulcer of the Lesser Curvature Following Pyloric Ulcer.—In Goyena's case a gastro-enterostomy was performed for ulcer of the pylorus. Three years afterward the symptoms returned. The blood examination suggested the existence of an infected ulcer, and a fluoroscopic study revealed a typical defect in the lesser curvature. The diagnosis was perforated ulcer. Because of the patient's general condition, complicated by fever, tuberculosis and syphilis, operation had to be postponed. A trial of foreign protein therapy has already yielded some results.

Seven Deaths from Botulism in One Family.—Pando was called on to determine the cause of seven deaths in one family. The whole household had partaken of string beans preserved at home. All became sick within twenty-four hours, and seven out of eight patients died from a few hours to six days afterward. Only one member of the family survived, and he was in the hospital for more than two months. A sample of the beans examined disclosed both *B. botulinus* and its toxin. This is probably the only case of its kind in the whole province of Buenos Aires. A similar occurrence was reported from Mendoza several years ago. All who ate from a dish of preserved asparagus died. One of the guests happened to be a physician and he rushed to the train, saying he wanted to die in Buenos Aires. No one could save him.

Archiv für Ophthalmologie, Berlin

117: 403-574 (Sept. 29) 1926

Anatomy of Optic Tract and Visual Center. S. E. Henschen.—p. 403.
Representation of Both Eyes in Optic Tract and Visual Cortex. S. E. Henschen.—p. 419.
Nystagmus. J. Ohm.—p. 460.
*Ophthalmologic Studies of Diabetic Dog. T. Takahashi.—p. 479.
The Picture on the Retina and the Apperception Picture. E. Kupfer.—p. 511.
Reflex Tracts for Movements of the Ear and Eye. M. Bartels.—p. 538.
Heterochromia. H. W. Kranz.—p. 554.

Ophthalmologic Studies on Diabetic Dogs and the Effect of Insulin.—Takahashi showed that in diabetic dogs the sugar content of the aqueous humor was slightly higher than that of the blood. The protein content in hyperglycemic animals was 0.4 per cent and in healthy dogs 1.66 per cent. He reports five clinical cases of diabetic cataract in which administration of insulin seemed to prevent postoperative infections of the iris. The decrease in blood sugar caused by insulin provokes an increase of fibrinogen and fibrin ferments, which, in turn, increases the coagulability of the aqueous humor and thus perhaps prevents hemorrhage.

Archiv für path. Anatomie und Physiologie, Berlin

261: 649-944 (Sept. 30) 1926

Changes in the Kidneys of the Tuberculous. K. Spring.—p. 649.
Pancreatic Atrophy and Lipomatosis. J. Knoflach.—p. 666.
Fibrin Calculi in Kidney Pelvis. W. Flottmann.—p. 685.
Paget's Disease of the Nipple. W. Arnd.—p. 700.
Osteogenesis Imperfecta. T. Fahr.—p. 732.
Mechanism of Anaphylactic Shock. G. P. Ssacharoff.—p. 751.
*Experimental Cirrhosis of the Liver. G. Leitmann.—p. 767.
Mycloschisis with Ectrophy of the Entodermal Wall. F. Lucksch.—p. 776.
Pathologico-Anatomic Changes in Thalamencephalon in Lyssa. B. S. Slotwer.—p. 787.
Changes in the Sympathetic Ganglions in Rabies. S. Chachina.—p. 795.
Changes in the Central Nervous System in Rabies. S. I. Krinitzky.—p. 802.
Scarlet Fever Virus. A. Smirnowa-Zamkowa.—p. 821.
*Gallbladder in Scarlet Fever. A. Smirnowa-Zamkowa.—p. 832.
Irrigation Experiments on Surviving Aortas. M. Glasunow.—p. 837.
Theory of Hematoxylin Staining. M. Gutstein.—p. 846.
Epinephrine and Hematopoiesis. M. Mandelstamm.—p. 858.
Myoma of the Liver. R. Demel.—p. 881.
Cancer Metastasis in the Spleen. W. di Biasi.—p. 885.
Cytology of Sarcoma in the Hen. G. Roskin.—p. 919.
Epithelial Tumors of the Central Nervous System. A. Gromelski.—p. 933.

Experimental Cirrhosis of the Liver.—Leitmann induced experimental cirrhosis of the liver in rabbits, using tar oils, dissolved in toluene, in applications to the skin. Microscopic examinations of the liver showed degeneration of the liver cells, proliferation of the connective tissue and regeneration of the liver parenchyma. Ascites in cirrhosis of the liver depends on changes in the capillaries of the regenerated pseudolobules. Only pathologic cells contained iron. Proliferation of the biliary tract occurred in regions with the most extensive proliferation of the connective tissue. Hyperplasia of the spleen, parenchymatous degeneration of the epithelium of the uriniferous tubules and arteriosclerotic processes in the ascending aorta were also noted.

The Gallbladder in Scarlet Fever.—Smirnowa-Zamkowa examined the gallbladder for streptococci in thirteen fatal cases of scarlet fever. The cultures were taken from the mucosa of the gallbladder. In a majority of cases she found that streptococci were excreted in both the earlier and later stages of the disease. The reactive processes in the wall of the gallbladder corresponded to similar processes in other organs. The streptococci mostly invaded the gallbladder from the lymphatic vessels and gastro-intestinal tract.

Jahrbuch für Kinderheilkunde, etc., Berlin

114: 1-126 (Sept.) 1926

*Hen's Egg in Spasmophilia. K. Klinke.—p. 1.
*Congenital Icterus with Normal Biliary Tract. C. de Lange.—p. 15.
Shock in Treatment of Scarlet Fever. P. Bode.—p. 31.
*Exsiccation and Carbohydrate Metabolism. E. Schiff and C. Choremis.—p. 42.
*Atypical Hemophilia. W. Reimold et al.—p. 79.
Hirschsprung's Disease. P. Leitner.—p. 103.

Hen's Egg in Spasmophilia.—Klinke's clinical and experimental investigations showed that in the nutrition of spasmophilic children, the hen's egg represented a complete substitute for the proteins in milk. In his six cases electrical excitability and other spasmophilic symptoms disappeared a short time after administration of eggs, combined with calcium. Rachitic symptoms also showed a tendency to disappear in some of the cases.

Congenital Icterus with Normally Developed Biliary Tract.—Lange reports a rare case of congenital icterus in an infant, who died five days after birth. The blood examination before death revealed a slight neutrophilic leukocytosis. The cytoplasm of several polymorphonuclear leukocytes showed vacuoles, and 80 per cent of the neutrophilic polymorphonuclear leukocytes contained toxic granules. Neither sepsis nor syphilis was found at necropsy, and the weight of the liver was normal. The histologic examinations showed a slight fatty degeneration of the liver parenchyma and a severe phagocytosis of erythrocytes and erythroblasts. There was a large increase in the iron content of the spleen. The icterus was probably caused by intra-uterine intoxication.

Experimental Exsiccation and Carbohydrate Metabolism.—In experiments on normal infants Schiff and Choremis found that twenty-four hours' fasting, with normal intake of water, caused hypoglycemia, and decrease in the inorganic phosphorus and alkali reserve of the blood. Ketonuria was absent in most of the cases. Hypoglycemia did not occur after twenty-four hours' fasting when the water intake was limited. There was a slight increase in the inorganic phosphorus of the blood, but decrease in the alkali reserve. Ketonuria occurred regularly. Infants suffering from infectious diseases did not present hypoglycemia either after twenty-four hours' fasting with normal intake of water, or after administration of bicarbonate with limited intake of water. Ketonuria occurred regularly and a decrease in the effect of insulin was noted.

Observations and Studies in a Case of Atypical Hemophilia.—Reimold, Stöber and Klinke present the case of a boy, aged 12, who suffered from an atypical hemorrhagic diathesis which was characterized by generalized edema and a temperature curve which resembled that in septic typhoid fever. Sodium chloride increased in the blood during the period between the hemorrhages, but it returned to normal during the hemorrhage, when the coagulation time was decreased. The increase of sodium chloride in the blood was accompanied by an increase in the resistance of erythrocytes to hypotonic solutions of sodium chloride. Blood serum from this hemophilic patient protected mice inoculated with trypanosomes against infection, during the period of hemorrhage, although this property disappeared during the period between the hemorrhages.

Mitteilungen a. d. Grenzgeb. der Med. und Chir., Jena

39: 415-676, 1926

*Thyroid Pathology. F. de Quervain.—p. 415.
*The Goiter of the Cretin. A. Wydler.—p. 467.
*Biologic Value of the Goiter of the Cretin. M. Dubois.—p. 543.
*Goiter in Tadpole Test. M. Branovačky.—p. 563.
*Neutralization of Exophthalmic Goiter Serum by Cretin's Serum. M. Branovačky.—p. 593.
*Functional Value of Malignant Goiter. Branovačky-Pelech.—p. 609.
*Kottmann's Reaction. E. Walder.—p. 626.
*Basal Metabolism. F. de Quervain and F. Pedotti.—p. 646.

Thyroid Pathology.—De Quervain introduces the other papers from his school, contained in this issue, by an historical review and a discussion of the present problems of the pathology of the thyroid, also of methods of investigation. He favors the hypothesis of a dysthyroidism of a minus variant in some types of cretinism and of a plus variant in exophthalmic goiter.

Goiter of Cretins.—Wydler studied histologically 118 cases of all grades of cretinism and compared the results with the biologic tests for activity of these goiters. This activity was seen in the action of the goiter tissue on gas metabolism in rats and in the action of the patient's blood on the sensitiveness of rats to lowered oxygen pressure (Asher-Streuli's method). Parallelism was observed, although some of the goiters contained just as much active substance as goiters from euthyrotic noncretins (subjects with normal function of the thyroid).

Biologic Value of the Goiter of the Cretin.—Dubois found a parallelism between the clinical symptoms and the lowered action of cretin's goiter on the metamorphosis of tadpoles. The goiters used contained little or no iodine.

Goiter in Tadpole Test.—Branovačky tested the action of various types of goiter tissue on the metamorphosis and growth of tadpoles. Thyroxin and thyroid tablets had a stronger influence than any goiter used. Of the goiters, exophthalmic goiter—with one exception—accelerated the development most, normal thyroid less; puberty goiter still less. The nodes from goiters of cretins had a slight inhibiting influence on metamorphosis and a stimulating influence on growth, while the goiter from a child seemed to inhibit development and was without influence on growth. Blood serum from patients with exophthalmic goiter as well as from healthy subjects had hardly any influence, in spite of the fact that in all other respects the tadpole experiment is more sensitive than other tests for the activity of thyroid substance.

Neutralization of Exophthalmic Goiter Serum by Cretin's Serum.—Branovačky again confirms the increase of tolerance in rats to lack of oxygen after injection of blood serum from cretin dwarfs. The serum neutralizes the opposite action of serum from patients with exophthalmic goiter. He believes that these experiments indicate the existence of a neutralizing physiologic function of the thyroid and an accumulation of poisonous substances in the cretin's blood. Besides this, the thyroid has the well known stimulating function. Serum from normal dogs, like serum from hyperthyroid patients, increased the sensitiveness of rats to lack of oxygen. The serum from a thyroidectomized goat was at first without influence. When taken several months after the operation, it had a slight neutralizing action against serum from exophthalmic goiter. Similar commercial preparations did not have a neutralizing effect. Some even increased the rat's sensitiveness. He regards these preparations as useless in therapy—aside from the fact that the dose would have to be enormous even if they acted as strongly as cretin's serum.

Functional Value of Langhans' Proliferating Goiter.—Branovačky-Pelech tested on tadpoles the activity of three malignant goiters of the Langhans type. She saw but little influence, especially as regards growth. The metamorphosis was somewhat accelerated, but the malignant tissue showed a decidedly weaker action as well as some qualitative differences from the remaining healthy tissues.

Kottmann's Reaction.—Walder confirms the deeper brown developing with the serum from cretins and the weak coloring with exophthalmic goiter. The serums from patients with other disturbances of the thyroid did not differ much from normal serums.

Basal Metabolism.—De Quervain and Pedotti studied the respiratory metabolism in 178 cases of goiter, including the exophthalmic and cretin forms, and in some cases of cretinism with atrophic thyroid. Thyroidectomy lowered the basal metabolism in exophthalmic goiter more than did ligating of the arteries or rest in bed. The metabolism was normal in goiter patients who did not have other clinical symptoms. In cretins with goiter it was, on the average, below normal (—8 per cent). Only exceptionally—with stenosis of the trachea or restlessness—were the figures above normal. In cretinism with atrophic thyroid and in adiposogenital dystrophy, the metabolism was always below normal. The authors observed some relations between the basal metabolism, frequency of pulse, breathing volume per minute and the respiratory quotient. As a rule, the latter was low with high metabolic rates.

Monatsschrift für Kinderheilkunde, Leipzig

33: 289-384 (Sept.) 1926

Clinical Importance of Scaphoid Scapula. Brückner.—p. 289.
*Intraperitoneal Infusion. O. Tezner and A. Ebel.—p. 294.
*Treatment of Thrush. R. Fischl.—p. 307.
Congenital Ichthyosis. Frankenhaus.—p. 310.
*Photo-Activity of Irradiated Substances. O. Beck.—p. 320.

Intraperitoneal Infusion.—Tezner and Ebel administered intraperitoneal injections of from 60 to 200 cc. of physiologic solution of sodium chloride, normosal or 6 per cent dextrose to sixty-seven infants who were suffering from nutritional and parenteral disturbances and infection toxicoses. Usually from seven to eight infusions were given to each infant, one injection being given once in twenty-four hours; in a few cases, twice. The total number of infusions given was 171. In four of the sixty-seven infants, life was undoubtedly saved. Two of them developed peritonitis. The total mortality was 51 per cent.

Treatment of Thrush.—Fischl made a local application to the tonsils of a 5 to 20 per cent solution of ferric chloride in twenty-five cases of exudative angina. The thrush disappeared in from twenty-four to forty-eight hours.

Photo-Activity of Irradiated Substances.—Beck irradiated with artificial sunlight cod liver oil, olive oil, linseed oil, triolein, tripalmitin, tristearin, blood, milk, glycerol, paraffin and the liver of the rat. Physical and chemical changes took place in these substances, as was shown by their property of blackening a photographic plate. There was also a biologic difference between rachitic and antirachitic substances. Both blackened a photographic plate, but differed in absorption spectrum and iodine number.

Zeitschrift für Kinderheilkunde, Berlin

42: 1-204 (Sept. 18) 1926

Results and Objectives in Pediatrics. A. Schlossmann.—p. 1.
*Heat Regulation in Premature Babies. A. Eckstein.—p. 5.
Hospitalism in Infant Asylums. E. Eckstein-Schlossmann.—p. 31.
"Natural Limitation of Lactation" in the Human Race. E. Aaron.—p. 39.
Excretion of Yellow Vegetable Coloring Matter in Breast Milk. H. Paffrath and A. Consten.—p. 51.
Calcium in the Bloodserum of New-Born Infants and Their Mothers. A. Nohlen.—p. 60.
Avitaminosis in Monkeys. H. Paffrath and H. Schlossmann.—p. 66.
Metabolism in Osteogenesis Imperfecta. A. Sindler.—p. 85.
Iodine Content of the Thyroid. B. Syring.—p. 113.
Excretion of Iodine in Milk. W. Rasche.—p. 124.
Hemimicromodification of the Wassermann Reaction. A. Nohlen and S. Ball.—p. 133.
Diphtheria Carriers and the Schick Reaction. H. Meyer.—p. 136.
Friedreich's Ataxia. E. Neustadt-Steinfeld.—p. 142.
*Pathogenesis and Therapy of Suppurative Diseases of the Pleura in Infants. E. Burghard.—p. 156.
Epidemic Parotitis. S. Meyer and H. Reifenberg.—p. 163.
Diagnostic Errors in Infectious Diseases of Children. S. Meyer and H. Herz.—p. 172.
Frequency of Exanthem from Diphtheria Serum. F. Gierthmühlen.—p. 194.

Heat Regulation in Premature Babies.—Eckstein studied 119 cases of prematurely born infants, with a mortality of 15 per cent. The temperature at birth was sometimes only 26 C.

(78.8 F.), but the infants developed normally and possessed good central thermoregulation. In the fatal cases, various diseases, such as sepsis and syphilis, were discovered at necropsy, although the cause of death had originally been stated as rigidity from cold. The premature babies showed typical defense reflexes against cold, such as vasomotor reaction and tremor of the extremities, but also reflexes against heat, such as sweating. They were able to maintain a constant temperature and, when healthy, possessed both physical and chemical thermoregulation. Increase of the bath temperature caused a tendency to supernormal body temperature, which was probably due to increase in the metabolism. Abnormalities in the thermal metabolism did not depend on the relative surface of the skin, but on its quality. Thin skin, lack of fat, high blood circulation and increased exsiccation during the first days of life, were the most important factors.

Pathogenesis and Therapy of Suppurative Diseases of the Pleura in Infants.—In twenty-seven necropsies on infants, performed by Burghard, 74 per cent of the cases of suppuration in the thoracic cavity were caused by pulmonary abscesses which had penetrated into the pleural cavity. Pericarditis occurred in 19 per cent and congenital syphilis in 22 per cent of the cases. In his treatment of seventeen infants the best therapeutic results were obtained by puncture; the mortality was 53 per cent. The site of the puncture varied according to the condition of the patient. Precautions were taken to avoid production of pyothorax or pneumothorax, injury to the ribs or infection of tissues. General treatment with fresh air, breast milk in young infants, stimulants and narcotics was used to supplement the puncture treatment.

Zeitschrift für Krebsforschung, Berlin

24: 1-98 (Sept. 18) 1926

Histogenesis of Cancer Stroma. Kromayer.—p. 1.
*Roffo's Diagnosis of Cancer. M. Berić.—p. 10.
Tumor Immunity. W. Caspari and E. Schwarz.—p. 15.
Sarcoma in the House Sparrow. P. Cohrs.—p. 33.
Multiplicity of Tumors. L. Puhr.—p. 38.
Carcinoma Since the War. W. Eichengrün and A. Esser.—p. 63.
Growth of Experimental Tumors. H. T. Deelman and J. P. van Erp.—p. 86.

Roffo's Diagnosis of Cancer with Neutral Red.—Berić tried Roffo's test on thirty-five patients with cancer and sixty-five persons suffering from non-neoplastic diseases. He obtained sixteen positive and nineteen negative reactions in the first group and nineteen positive and forty-six negative reactions in the second. Similar results were obtained when methylene blue was used instead of neutral red.

Zeitschrift für Urologie, Leipzig

20: 641-720, 1926

*Early Death with Uremic Symptoms After Prostatectomy. E. Seifert.—p. 641.
Electrocoagulation of Bladder Tumors. K. Scheele.—p. 649.
Physical Therapy in Gonorrhea. A. Laqueur.—p. 655.
*Enuresis in Children. H. Rietschel.—p. 664.
Irradiation in Gynecology. Gauss.—p. 671.
Studies of Mineral Springs. P. Haertl.—p. 673.
Urologic Roentgen-Ray Diagnosis. E. Pflaumer.—p. 684.
Hypertension. E. Grafe.—p. 696.
Rheumatism. F. Gudzent.—p. 705.

Fatal Prostatectomy.—In several cases of prostatectomy performed by Seifert, the patients died with acute uremic symptoms from two to three days after the operation. Clinical experiences and animal experiments show that true uremia usually does not prove fatal until from five to ten days or more after operation. The symptoms of the acute uremia in the cases cited resembled those of eclamptic coma. He asserts that the early death was caused by cardiovascular disturbances, such as a considerable decrease in the blood pressure, which resulted in postoperative oliguria and anuria, and suggested the diagnosis of uremia. Lowering of the blood pressure was due to the spinal anesthesia, to the operation itself and to changes in the equilibrium of the cerebrospinal fluid. He urged caution in resorting to spinal anesthesia. Patients with prostatitis who also have polyuria or renal insufficiency must be examined carefully with the indwelling catheter before the operation; a cystostomy also may be required.

Enuresis in Childhood.—In Rietschel's treatment of enuresis the child is examined for helminths, cystitis, etc., and is questioned about masturbation. The diet resembles the diabetic diet except for carbohydrates. The child is wakened one to three times every night, the first time about half past nine or ten o'clock, so that the time of occurrence of the enuresis may be determined. It is important to educate the bladder reflex so that micturition will take place during a period of absolute consciousness. It may be necessary to use a cold wet sponge to bring the child to complete consciousness and have it leave the bed voluntarily.

Zeitschrift für Urologische Chirurgie, Berlin

20: 275-460 (Sept. 22) 1926

Hypertrophy of Prostate and Constitution. P. Blatt.—p. 275.
Mesoblastic Mixed Tumors of the Kidney. H. Nevinny.—p. 295.
*Ureteral Catheterization and the Indigo Carmine Test in Paranephritic Suppurations. A. Damski.—p. 401.
Kidney Cysts. L. Löffler.—p. 407.
*Diuresis from Cold. H. Bronner and J. Schüller.—p. 411.
Surgery of the Bladder. O. Orth.—p. 422.
Kidney Anomalies. K. Weiner.—p. 429.

Ureteral Catherization and Indigo Carmine Test in Cases of Paranephritic Suppurations.—Damski emphasizes the diagnostic importance of urologic examinations in cases of paranephritic suppurations, with normal urine. Retention of the urine on the infected side does not always indicate a pathologic condition of the kidney. After incision of the abscess it may prove necessary to examine the kidney. In cases in which this is impossible, he waits until the fistula has healed and the temperature has become normal, and repeats the urologic examinations and possibly the operation, if the kidney is still infected. Comparison of the urine from the suspected kidney with that from the other side may reveal a pathologic condition of the kidney when other symptoms are absent.

Experimental Studies of Diuresis from Cold.—In experiments on human subjects Bronner and Schüller found that there exists a diuresis from cold, which stands in the closest connection to the sensation of cold. It is of short duration and probably of vasomotor nature.

Zentralblätt für Gynäkologie, Leipzig

50: 2417-2480 (Sept. 18) 1926

*Influence of Pregnancy on Pulmonary Tuberculosis. O. Pankow.—p. 2418.
*Roentgen-Ray Treatment of Inflammatory Diseases of the Adnexa. L. Schoenholz.—p. 2428.
Rodent Ulcer of the Portio. L. Schoenholz.—p. 2433.
*Prophylactic Use of Pituitary Extract in the Third Stage of Labor. F. Jess.—p. 2440.
Importance of the Recognition of Syphilis During Labor. W. Baer.—p. 2447.
Acetylene in Gynecology. H. Franken.—p. 2455.
Influence of Acetylene Anesthesia on the Blood Pressure and Nervous System. H. Franken et al.—p. 2461.

The Influence of the Processes of Gestation on Pulmonary Tuberculosis.—Pankow reviews the opinions of a number of authors on this question, and sees no reason to alter his principle, which is that, in manifest tuberculosis, pregnancy should be interrupted as early as possible in the course of the disease and in the first months of the pregnancy. If in doubtful cases one waits to obtain a clearer prognosis of the disease, the time when the intervention was most likely to influence the patient favorably will have passed. He cites a number of personal cases exemplifying this statement.

Treatment of Inflammatory Diseases of the Adnexa with Roentgen Rays.—Schoenholz had better results in gonococcus infections with doses large enough to produce temporary castration than with smaller doses. Small, frequently repeated doses worked well in tuberculosis. Uncomplicated tuberculosis of the adnexa can be cured by roentgen rays in 50 per cent of the cases, he affirms. When intestinal or pulmonary tuberculosis coexists, this method is still to be preferred to surgery; it renders valuable service in checking the menorrhagias and metrorrhagias which so often consume the strength of the patient.

Prophylactic Intravenous Injection of Pituitary Extract in the Third Stage of Labor.—In both normal and pathologic births, Jess gives an intravenous injection (a syringeful) of a pituitary extract within five minutes after delivery: he repeats the injection if the placenta does not come away within twenty minutes. Tables covering 500 treated cases and 500 control cases show that the prophylactic injections reduced the average time from 19.9 to 9.5 minutes; the average loss of blood, from 393.2 to 187.8 Gm.; the number of cases in which more than 1,000 Gm. of blood was lost, from twenty-eight to ten, and the number of Credé expressions, from seventeen to eight. The necessity for manual separation was not lessened. Placental fragments were retained in one of the treated and two of the untreated cases. A table dealing with the pathologic deliveries separately shows, in general, a corresponding improvement in the prophylactically treated cases over those in which the injections were not given.

Mediko-Biologicheskiy Jurnal, Moscow

2: 5-80, 1926

Action of Hormones and Constitution. G. Tsondek.—p. 5.
Phonograms of Auricles and "Cannon Sound" in Heart Block. Zelenin and Fogelson.—p. 12.
*Action of Epinephrine on Suprarenal Nerves. P. P. Averyanoff.—p. 24.
*Rôle of Chromaffin Tissue in Hyperglycemia. N. B. Medvedeva.—p. 31.
Cytotoxins as Specific Stimulants. A. A. Bogomolets.—p. 35.
Vegetative System in Epidemic Encephalitis. V. S. Deryabin.—p. 41.
Variations of p_H in Isolated Cells. Bogomolets and Medvedeva.—p. 53.
Enzymes in the Brain of Animals. F. I. Berenstein.—p. 56.

Influence of Neurocrine (Secretion into Nervous System). Action of Epinephrine on Cardiovascular System.—Experimenting on dogs, Averyanoff removed one suprarenal; he severed all the vessels of the other, leaving the nerves intact. Then epinephrine was introduced into the medullary substance of the gland. This induced a gradual rise of arterial pressure, and slight increase in the amplitude of the pulse. The high blood pressure persisted for twenty-five or thirty minutes. The same phenomenon was observed when irritation of the suprarenal nerves was produced with faradic currents. Control tests with injection of sodium chloride solution were not followed by increase in the blood pressure. The results support Bogomolets' theory that epinephrine first influences the suprarenal nerves and then, by reflex action, the cardiovascular system. After having produced its physiologic effect in the suprarenal gland, the epinephrine is eliminated by the suprarenal vein and destroyed in the blood.

Rôle of Suprarenal Chromaffin Tissue in Hyperglycemia.—One suprarenal gland was removed in the dogs used in these experiments; the other gland was isolated from the blood stream by severing the vessels. The nerves were respected. Epinephrine was injected into the medullary substance of the gland. This was followed by increase of sugar in the blood. Medvedeva concludes that an irritation of the suprarenal nerves from epinephrine has a reflex action on the cardiovascular system and other organs, resulting in accumulation of glycogen and increase in blood sugar. This action of epinephrine is specific; similar injections of sodium chloride solution were without effect. The origin of the epinephrine reflex lies in the chromaffin tissue of the suprarenal medullary substance. Injected into the suprarenal cortex, epinephrine was without effect.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

70: 1843-1962 (Oct. 23) 1926

*Metabolism of Leukocytes. A. Bakker.—p. 1844.
Removal of Placenta in Lateral Decubitus. R. Geel.—p. 1852.
Partial Neuroretinitis Following Influenza. G. A. Schaly.—p. 1853.
Charles de l'Escluse (Carolus Clusius). F. W. T. Hunger.—p. 1856.
History of Malaria in Holland. N. H. Swellengrebel and P. J. J. Honig.—p. 1864.

Conformity in Metabolism of Cancer Cells and Leukocytes.—Bakker studied the oxygen consumption of leukocytes in Ringer's solution, with the addition of 0.1 per cent of glucose. Suspensions containing, respectively, 30 and 85 per cent of polynuclear leukocytes, and others containing 95 and 100 per cent of what he terms mononuclear leukocytes, which were obtained from exudates, produced lactic acid from glucose in the presence of oxygen.

Acta Dermato-Venereologica, Stockholm

7: 201-423 (June) 1926

Chemotherapy in Syphilis. C. Levaditi.—p. 201.
Multiple Carcinoids of the Skin. H. Fuhs.—p. 233.
Erythrodermia Ichthyosiformis (Brocq). K. Edel.—p. 287.
Anaphylaxis in Dermatology. B. Dujardin.—p. 293.
Erythematous and Exanthematous Lupus. J. Golay.—p. 302.
*Complement Fixation Reaction in Tuberculosis. K. Hübschmann.—p. 315.
*Thermoresistance of Gonococci in Relation to Diathermy. P. J. van Putte.—p. 350.
*Influence of Diathermy on Gonorrhea. P. J. van Putte.—p. 358.
*Pleuropulmonary Changes in Secondary Syphilis. O. Reuterwall.—p. 367.
Gennerich's Endolumbar Treatment. U. Müllern-Aspegren.—p. 391.

Complement Fixation Reaction in Tuberculosis.—Hübschmann studied a variety of tuberculin prepared by himself, which he calls antigen H, in the serodiagnosis of tuberculosis. He found that it was a good substitute for Besredka's antigen in the complement fixation reaction in lupus vulgaris, surgical tuberculosis, pleuritis, pneumonia, pregnancy, malignant tumors, lupus erythematosus and normal conditions. In cases of skin tuberculosis, positive reactions were obtained only in extensive, progressive cases. The reaction was stronger with serum than with the contents of cutaneous blisters. He noted variations in the positive reaction in surgical tuberculosis, which may have been due to changes in the tuberculous foci or in the general condition of the patient. Negative results did not always exclude tuberculous foci.

Thermoresistance of Gonococci.—Van Putte studied the resistance of gonococci to incubator heat and to the electric resistance heat of diathermy. He was able to cultivate gonococci at 41.5 C., and after six hours heating at 45 C. a large majority of the strains were still viable. The resistance of gonococci in vitro to diathermy was equally great, and thus much greater than was previously thought.

Influence of Diathermy on Gonorrhea.—In the diathermy treatment of gonorrhea, van Putte used as different electrodes two nickel plated copper plates to which a handle had been soldered. The plates measured 10 by 4.5 cm. One plate was placed on the penis, which reposed on the abdomen, and the other plate was placed on the scrotum. The indifferent electrode was a lead plate, 23 by 38 cm. in size. It was placed over the lumbar region. In a few cases of chronic gonorrhea, no matter of how long standing or how previously treated, a cure was effected in one or two days. Each sitting was of from four to five hours' duration, with a temperature of from 41 to 42 C. Acute gonorrhea did not respond well to the treatment. In the body gonococci could be destroyed by a lower diathermic heat than was necessary to kill them in vitro. The heat probably acted by stimulating the production of antibodies, and was thus only the indirect cause of the death of the organisms.

Pleuropulmonary Changes in Secondary Stage of Syphilis.—Reuterwall reports the case of a man, aged 20, who died presenting early symptoms of syphilis, such as primary sclerosis, adenitis and roseola. Drug exanthem, from the use of arsphenamine, and acute bronchitis and bronchopneumonia were also present. At necropsy there were found pharyngeal and laryngeal inflammation and tracheitis, changes in the pleural and pulmonary lymphatic glands, bilateral serofibrinous pleuritis, and exudates in the alveoli near the bronchi and interlobular veins. The condition was regarded as secondary syphilis of the lungs.

Hospitalstidende, Copenhagen

69: 865-888 (Sept. 9) 1926

*Hematologic Criterion of Pernicious Anemia. S. Jørgensen and E. J. Warburg.—p. 865. C'cn.—p. 973.
Neuritis in Sanocrysin Treatment. O. Beyerholm.—p. 881.

69: 909-932 (Sept. 23) 1926

Photoactivity of Antirachitic Oils. E. Rekling.—p. 920. C'cn.—p. 957.

A Criterion of Pernicious Anemia.—In their studies of secondary anemia and anemia from hemorrhage, Jørgensen and Warburg found that the microcytes were relatively thick (more globular than normal cells). The presence in the blood of more than 15 per cent of erythrocytes with a diameter of not less than 8.6 microns was the best hematologic criterion of pernicious anemia.